THE UNIVERSITY of NEW MEXICO

Department of Safety and Risk Services (SRS)
MSC07 4100
1 University of New Mexico
Albuquerque, NM 87131-0001
Phone: (505)277-2753 Fax: (505)277-9006
srs.unm.edu

October 12, 2016

Cale J. Kanack
Environmental Health Specialist I
Air Quality Division
Environmental Health Department
City of Albuquerque

Re: Construction Permit Applications for University of New Mexico Popejoy Hall

Dear Mr. Kanack

Enclosed please find a Construction Permit application packet for the proposed installation of a new standby emergency generator at the University of New Mexico. The new generator is powered by a new diesel engine with a power rating of 480 hp, and will be installed at Popejoy Hall (Building 72). It will replace the old, existing Non-NSPS emergency generator at this location, and is intended to provide backup power. An EPA Certificate of Conformity for the new unit is provided to demonstrate NSPS compliance.

A check for the application review fees, payable to the City of Albuquerque is also enclosed.

The project to replace this generator is time sensitive, and the University would appreciate any efforts to quickly process these applications.

Should you have any questions, please do not hesitate to contact me at 505-277-2766.

Sincerely,

Chemanji Shu-Nyamboli

Environmental Health Manager

cc: David A. Penasa, UNM Facilities Engineering Manager
Israel Tavarez, Environmental Health Manager, Air Quality Division, City of Albuquerque

Albuquerque Environmental Health Department - Air Quality Program
Please mail this application to **P.O. Box 1293, Albuquerque, NM 87103**
or hand deliver between 8:00am - 5:00pm Monday - Friday to:
3rd Floor, Suite 3023 - One Civic Plaza NW, Albuquerque, New Mexico 87103
(505) 768 – 1972 aqd@cabq.gov (505) 768 - 1977 (Fax)

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

Clearly handwrite or type **Corporate Information** **Submittal Date:** 10/12/16

1. Company Name: University of New Mexico _____ 2. Street Address 1800 Roma Ave, NE _____ Zip 87131 __

3. Company City Albuquerque_____ 4. Company State_NM__ 5. Company Phone _505-277-2766____ 6. Company Fax _____

7. Company Mailing Address:1801 Tucker Ave, NE _____ Zip: 87131

8. Company Contact and Title: Che Shu-Nyamboli, Environmental Health Manager_ 9. Phone__505-277-2766__10. E-mail _cshu@unm.edu

Stationary Source (Facility) Information: **Provide a plot plan (legal description/drawing of facility property) with overlay sketch of facility processes; Location of emission points; Pollutant type and distances to property boundaries]**

1. Facility Name Popejoy Hall____2. Street Address__1812 Sigma Chi Rd, NE___

3. City___Albuquerque___ 4. State_NM___ 5. Facility Phone (505) _277-2766__ 6. Facility E-mail cshu@unm.edu__

7. Facility Mailing Address (Local)_1801 Tucker Rd NE___Zip_87131__

8. Latitude - Longitude or UTM Coordinates of Facility_____352.1 E 3883.2N_____

9. Facility Contact and Title same as company contact and title 10. Phone ___11.E-mail __

General Operation Information (if any further information request does not pertain to your facility, write N/A on the line or in the box)

1. Facility Type (description of your facility operations)_Emergency Generator

2. Standard Industrial Classification (SIC 4 digit #) 8221 3. North American Industry Classification System (NAICS Code #)_611310___

4. Is facility currently operating in Bernalillo County. Yes If yes, date of original construction 2/14/1984_If no, planned startup is___/___/___

5. Is facility permanent Yes If no, give dates for requested temporary operation - from _____/_____/_____ through ____/_____/_____

6. Is facility process equipment new Yes If no, give actual or estimated manufacture or installation dates in the Process Equipment Table

7. Is application for a modification, expansion, or reconstruction (altering process, or adding, or replacing process equipment, etc.) to an existing facility which will result in a change in emissions_Yes__ If yes, give the manufacture date of modified, added, or replacement equipment in the Process Equipment Table modification date column, or the operation changes to existing process/equipment which cause an emission increase

8. Is facility operation (circle one)? [Continuous Intermittent Batch]

9. Estimated % of production Jan-Mar_25__ Apr-Jun_25__ Jul-Sep_25__ Oct-Dec_25___

10. Current or requested operating times of facility____ hrs/day___ days/wk____ wks/mo____ mos/yr 11. Business hrs_____ am/pm to _____am/pm 200 hrs/yr

12. Will there be special or seasonal operating times other than shown above__No__ If yes, explain_____

13. Raw materials processed____Diesel_____14. Saleable item(s) produced_____

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Authority-to-Construct Permits (20.11.41 NMAC)

15. Permitting Action Being Requested

X New Permit ☐ Permit Modification ☐ Technical Permit Revision ☐ Administrative Permit Revision

Current Permit #: _____ Current Permit #: _____ Current Permit #: _____

PROCESS EQUIPMENT TABLE

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.)

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft^3;lbs; tons;yd^3;etc.)	Fuel Type
Example 1. Generator	Unigen	B-2500	A56732195C-222	7/96	7/97	N/A	250 Hp - HR. ~~YR.~~	Diesel
Example 2. Spray Gun	HVLP Systems	Spray-N-Stay 1100	k26-56-95	01/97	11/97	N/A	0.25 gal. - HR. ~~YR.~~	Electric Compressor
1. Emergency Generator	Caterpillar	C9 ACERT	TBD	TBD	TBD	N/A	480 Hp .	Diesel
2.							HR. YR.	
3.							HR. YR.	

1. Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.)__**Manufacture's Data**_____ Submit information for each unit as an attachment

EXEMPTED SOURCES AND EXEMPTED ACTIVITES

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.)

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft^3;lbs; tons;yd^3;etc.)	Fuel Type
Example 1. Generator	Unigen	B-2500	A56732195C-222	7/96	7/97	N/A	250 Hp - HR. ~~YR.~~	Diesel
Example 2. Spray Gun	HVLP Systems	Spray-N-Stay 1100	k26-56-95	01/97	11/97	N/A	0.25 gal. - HR. ~~YR.~~	Electric Compressor
							HR. YR.	
2.							HR. YR.	
3.							HR. YR.	

1. Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.)_____ Submit information for each unit as an attachment

UNCONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Process potential under physical/operational limitations during a 24 hr/day and 365 day/year = 8,760 hrs)

Process Equipment Unit*		Carbon Monoxide (CO)	Oxides of Nitrogen (NOx+NMHC)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Method(s) used for Determination of Emissions (AP-42, Material balance, field tests, manufacturers' data, etc.)
Example I. Generator	1.	9.1 lbs/hr	27.7 lbs/hr	1.3 lbs/hr	0.5 lbs/hr	2.0 lbs/hr	AP-42
	1a.	39.9 tons/yr	121.3 tons/yr	5.7 tons/yr	2.2 tons/yr	8.8 tons/yr	
1. Generator	1.	2.75 lbs/hr	3.17 lbs/hr	lbs/hr	0.98 lbs/hr	0.16 lbs/hr	AP-42
	1a.	12.03 tons/yr	13.87 tons/yr	tons/yr	4.3 tons/yr	0.69 tons/yr	
2.	2.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	
	2a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	
3.	3.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	
	3a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	

*** If any one (1) of these process units, or combination of units, has an uncontrolled emission greater than (>) 10 lbs/hr or 25 tons/yr for any of the above pollutants (based on 8760 hrs of operation), then a permit will be required. Complete this application along with additional checklist information requested on accompanying instruction sheet.**

*** If all of these process units, individually and in combination, have an uncontrolled emission less than or equal to (≤) 10 lbs/hr or 25 tons/yr for all of the above pollutants (based on 8760 hrs of operation), but > 1 ton/yr for any of the above pollutants - then a source registration is required.**

Note: If your source does not require a registration or permit, based on above pollutant emissions, complete the remainder of this application to determine if a registration or permit would be required for any Toxic or Hazardous air pollutants used at your facility.

Copy this page if additional space is needed for either table (begin numbering with 4., 5., etc.)

CONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Based on current operations with emission controls OR requested operations with emission controls)

Process Equipment Units listed on this Table should match up to the same numbered line and Unit as listed on Uncontrolled Table (pg.2)

Process Equipment Unit		Carbon Monoxide (CO)	Oxides of Nitrogen (NOx+NMHC)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Control Equipment	% Efficiency
I. Example Generator	1.	9.1 lbs/hr	27.7 lbs/hr	1.3 lbs/hr	0.5 lbs/hr	2.0 lbs/hr	Operating Hours	N/A
	1a.	18.2 tons/yr	55.4 tons/yr	2.6 tons/yr	1.0 tons/yr	4.0 tons/yr		
1.	1.	2.75 lbs/hr	3.17 lbs/hr	lbs/hr	0.98 lbs/hr	0.16 lbs/hr	Operating Hours	N/A
	1a.	0.27 tons/yr	0.32 tons/yr	tons/yr	0.09 tons/yr	0.01 tons/yr		
2.	2.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		
	2a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr		
3.	3.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		
	3a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr		

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.)
   Submit information for each unit as an attachment _____

2. Explain and give estimated amounts of any Fugitive Emissions associated with facility processes _____

_____

Popejoy

Uncontrolled Emissions					
Engine Rating (hp)	480				
	(g/hp-hr)	g/hr	Ibs/hr	g/yr	TPY
CO	2.6	1248	2.75136576	10932480	12.025728
NOx + NMHC	3	1440	3.1746528	12614400	13.87584
SOx	0.93	446.4	0.984142368	3910464	4.3015104
PM	0.15	72	0.15873264	630720	0.693792

Controlled Emissions					
Engine Rating (hp)	480				
	(g/hp-hr)	g/hr	Ibs/hr	g/yr	TPY
CO	2.6	1248	2.75136576	249600	0.27456
NOx + NMHC	3	1440	3.1746528	288000	0.3168
SOx	0.93	446.4	0.984142368	89280	0.098208
PM	0.15	72	0.15873264	14400	0.01584

Federal New Source Performance Standards (NSPS) for Stationary EMERGENCY Diesel Engines (40CFR 60.4202 & 60.4205) in Grams Per Horsepower Hour (g/hp-hr) for Engines with a displacement of < 10 Liters Per Cylinder

Horsepower / kW	Tier (CFR Section)	Year Of Manufacture	CO (g/hp-hr)	NOx[1] (g/hp-hr)	NMHC[1] (g/hp-hr)	NOx + NMHC[1] (g/hp-hr)	SOx[2] (g/hp-hr)	Particulate Matter (PM) (g/hp-hr)	Notes
< 11 Hp < 8 kW	1 (60.4205)	Pre 2007[3]	6.0			7.8	0.93*	0.75	* Use AP-42 Section 3.3 SOx factors if <600Hp and Section 3.4 if >600Hp, as shown on this table, or manufacturer's factors. Manufacturer's factors shall be used when larger than AP-42 factors.
	2 (60.4202) - (89.112)	2007	6.0			5.6	0.93*	0.6	
	4 (60.4202)	2008 +	6.0			5.6	0.93*	0.3	
≥ 11 Hp < 25 Hp	1 (60.4205)	Pre 2007[3]	4.9			7.1	0.93*	0.6	
	2 (60.4202) - (89.112)	2007	4.9			5.6	0.93*	0.6	
≥ 8 kW < 19 kW	4 (60.4202)	2008 +	4.9			5.6	0.93*	0.3	
≥ 25 Hp < 50 Hp	1 (60.4205)	Pre 2007[3]	4.1			7.1	0.93*	0.6	
	2 (60.4202) - (89.112)	2007	4.1			5.6	0.93*	0.45	
≥ 19 kW < 37 kW	4 (60.4202)	2008 +	4.1			5.6	0.93*	0.22	
≥ 50 Hp < 100 Hp	1 (60.4205)	Pre 2007[3]	3.03**	6.9	1.12**		0.93*	1.0**	** Use AP-42 Section 3.3 factors for CO, NMHC, and PM as shown on this table, or manufacturer's factors. Manufacturer's factors shall be used when larger than AP-42 factors.
	2 (60.4202) - (89.112)	2007	3.7			5.6	0.93*	0.3	
≥ 37 kW < 75 kW	3 (60.4202) - (89.112)	2008 +	3.7			3.5	0.93*	0.3	
≥ 100 Hp < 175 Hp	1 (60.4205)	Pre 2007[3]	3.03**	6.9	1.12**		0.93*	1.0**	
≥ 75 kW < 130 kW	3 (60.4202) - (89.112)	2007 +	3.7			3.0	0.93*	0.22	
≥ 175 Hp ≤ 750 Hp	1 (60.4205)	Pre 2007[3]	8.5	6.9	1.0		0.93*for < 600Hp or 3.67* for > 600Hp	0.4	
≥ 130 kW ≤ 560 kW	3 (60.4202) - (89.112)	2007 +	2.6			3.0		0.15	
> 750 Hp	1 (60.4205)	Pre 2007[3]	8.5	6.9	1.0			0.4	
	3 (60.4202) - (89.112)	2007***	2.6			4.8	3.67	0.15	
> 560 kW		*** 2007 – 2010 Model Year Engines > 3,000 Hp shall meet the Pre 2007 standards and beginning with the 2011 model year, Engines > 3,000 Hp shall meet the 2007 standards							

[1] When an emission factor is given for combined NOx + NMHC, individual emission factors for NOx and NMHC must be obtained from the manufacturer.

[2] SOx emission factors shall be based on AP-42 Section 3.3 for engines less than (<) 600 Hp and Section 3.4 for engines greater than (>) 600 Hp, or manufacturer's factors since SOx emission standards were not established for non-road diesel engine rulemaking. Manufacturer's factors shall be used when larger than the AP-42 factors. For engines > 600 Hp, the "S" multiplier is 0.05 (5%) if calculating SOx to reflect the current low sulfur diesel fuel standard of 500 ppm. Percent sulfur in diesel fuel transitions to Ultra Low Sulfur Diesel (15 ppm) by October 2010. For engines operated after October 2010, with a year of manufacture of 2010 or later, the "S" multiplier is 0.0015 (0.15%) if calculating SOx to reflect the proposed new standard.

[3] Pre 2007 means each stationary Compression Ignition Internal Combustion Engine (CI ICE) whose construction, modification or reconstruction commenced after July 11, 2005. The date of construction is the date the engine is ordered by the owner or operator. Stationary CI ICE manufactured prior to April 1, 2006, that are not fire pump engines are not subject to NSPS, unless the engines are modified or reconstructed after July 11, 2005. A modified or reconstructed CI ICE must meet the emission standards for the model year in which the engine was originally new, not the year the engine is modified or reconstructed (Preamble language – Section II. E).

**TOXIC EMISSIONS

VOLATILE, HAZARDOUS, & VOLATILE HAZARDOUS AIR POLLUTANT EMISSION TABLE

Product Categories (Coatings, Solvents, Thinners, etc.)	Volatile Organic Compound (VOC), Hazardous Air Pollutant (HAP), or Volatile Hazardous Air Pollutant (VHAP) Primary To The Representative As Purchased Product	Chemical Abstract Service Number (CAS) Of VOC, HAP, Or VHAP From Representative As Purchased Product	VOC, HAP, Or VHAP Concentration Of Representative As Purchased Product (pounds/gallon, or %)	1. How were Concentrations Determined (CPDS, MSDS, etc.)	Total Product Purchases For Category	(-)	Quantity Of Product Recovered & Disposed For Category	(=)	Total Product Usage For Category
EXAMPLE 1. Cleaning Solvents	TOLUENE	108883	70%	PRODUCT LABEL	lbs/yr 200 gal/yr	(-)	lbs/yr 50 gal/yr	(=)	lbs/yr 150 gal/yr
1.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
2.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
3.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr

1. Basis for percent (%) determinations (Certified Product Data Sheets, Material Safety Data Sheets, etc.). Submit, as an attachment, information on one (1) product from each Category listed above which best represents the average of all the products purchased in that Category.

****NOTE:** **A REGISTRATION IS REQUIRED, AT MINIMUM, FOR ANY AMOUNT OF HAP OR VHAP EMISSION. A PERMIT MAY BE REQUIRED FOR THESE EMISSIONS, IF THE SOURCE MEETS THE REQUIREMENTS OF PART 41.**

MATERIAL AND FUEL STORAGE TABLE

(Tanks, barrels, silos, stockpiles, etc.) Copy this table if additional space is needed (begin numbering with 4., 5., etc.)

Storage Equipment	Product Stored	Capacity (bbls - tons gal - acres,etc)	Above or Below Ground	Construction (welded, riveted) & Color	Install Date	Loading Rate	Offloading Rate	True Vapor Pressure	Control Equipment	Seal Type	% Eff.
Example 1. Tank	diesel fuel	5,000 gal.	Below	welded/ brown	3/93	3000gal HR. ~~YR.~~	500 gal. - HR. ~~YR.~~	N/A Psia	N/A	N/A	N/A
Example 2. Barrels	Solvent	55 gal Drum	Above - in storage room	welded/green	N/A	N/A HR. YR.	N/A HR. YR.	N/A Psia	N/A	N/A	N/A
1.						gal HR. YR.	HR. YR.	Psia			
2.						HR. YR.	HR. YR.	Psia			
3.						HR. YR.	HR. YR.	Psia			

1. Basis for Loading/Offloading Rate (Manufacturers data, Field Observation/Test, etc.)_____
Submit information for each unit as an attachment.

2. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.)_____
Submit information for each unit as an attachment.

STACK AND EMISSION MEASUREMENT TABLE

If any equipment from the Process Equipment Table (Page 2) is also listed in this Stack Table, use the same numbered line for the Process Equipment unit on both Tables to show the association between the Process Equipment and it's Stack. Copy this table if additional space is needed (begin numbering with 4., 5., etc.).

Process Equipment	Pollutant (CO,NOx,TSP, Toluene,etc)	Control Equipment	Control Efficiency	Stack Height & Diameter in feet	Stack Temp.	Stack Velocity & Exit Direction	Emission Measurement Equipment Type	Range-Sensitivity-Accuracy-
Example 1. Generator	CO, NOx, TSP, SO_2, NMHC	N/A	N/A	18 ft. - H 0.8 ft. - D	225 ^{0}F	6,000 ft^3/min - V Exit - upward	N/A	N/A
Example 2. Spray Gun	TSP, xylene, toluene, MIBK	Spray Booth	99% for TSP	9 ft. - H 0.5 ft. -D	ambient	10,000 ft^3/min - V Exit - horizontal	N/A	N/A
Emergency Generator	CO, TSP, SOx, NOx+NMHC	N/A	N/A	4 in – D	927.2 F	2460.9 ft3/min – V Exit - upward	N/A	N/A
2.								
3.								

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Submit information for each unit as an attachment

ADDITIONAL COMMENTS OR INFORMATION

I, the undersigned, a responsible officer of the applicant company, certify that to the best of my knowledge, the information stated on this application, together with associated drawings, specifications, and other data, give a true and complete representation of the existing, modified existing, or planned new stationary source with respect to air pollution sources and control equipment. I also understand that any significant omissions, errors, or misrepresentations in these data will be cause for revocation of part or all of the resulting registration or permit.

Signed this 3 day of 10, 2016

David W. Harris
Print Name

Executive Vice President for Administration, COO, CFO
Print Title

Signature

Popejoy

Uncontrolled Emissions					
Engine Rating (hp)	480				
	(g/hp-hr)	g/hr	Ibs/hr	g/yr	TPY
CO	2.6	1248	2.75136576	10932480	12.025728
NOx + NMHC	3	1440	3.1746528	12614400	13.87584
SOx	0.93	446.4	0.984142368	3910464	4.3015104
PM	0.15	72	0.15873264	630720	0.693792

Controlled Emissions					
Engine Rating (hp)	480				
	(g/hp-hr)	g/hr	Ibs/hr	g/yr	TPY
CO	2.6	1248	2.75136576	249600	0.27456
NOx + NMHC	3	1440	3.1746528	288000	0.3168
SOx	0.93	446.4	0.984142368	89280	0.098208
PM	0.15	72	0.15873264	14400	0.01584

City of Albuquerque

Environmental Health Department
Air Quality Program
Permit Application Review Fee Checklist

Please completely fill out the information in each section. Incompleteness of this checklist may result in the Albuquerque Environmental Health Department not accepting the application review fees. If you should have any questions concerning this checklist, please call 768-1972.

I. COMPANY INFORMATION:

Company Name	University of New Mexico	
Company Address	1800 Roma Ave NE Albuquerque NM 87131	
Facility Name	Popejoy Hall	
Facility Address	1812 Sigma Chi Rd, NE Albuquerque NM 87131	
Contact Person	Chemanji Shu-Nyamboli	
Contact Person Phone Number	505-277-2766	
Are these application review fees for an existing permitted source located within the City of Albuquerque or Bernalillo County?	**Yes**	**No**
If yes, what is the permit number associated with this modification?	**Permit # 0536 M1**	
Is this application review fee for a Qualified Small Business as defined in 20.11.2 NMAC? (See Definition of Qualified Small Business on Page 4)	**Yes**	**No**

RECEIVED ENVIRONMENTAL HEALTH 16 OCT 12 PM 4:48

II. STATIONARY SOURCE APPLICATION REVIEW FEES:

If the application is for a new stationary source facility, please check all that apply. If this application is for a modification to an existing permit please see Section III.

Check All That Apply	Stationary Sources	Review Fee	Program Element
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Source Registration required by 20.11.40 NMAC	$ 533.00	2401
	A Stationary Source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	$ 1,067.00	2301
	Not Applicable	*See Sections Below*	
Stationary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
X	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	$ 800.00	2302
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	$ 1,600.00	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	$ 3,200.00	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	$ 4,800.00	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	$ 6,399.00	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	$7,999.00	2307
	Not Applicable	*See Section Above*	
Federal Program Review Fees (In addition to the Stationary Source Application Review Fees above)			
X	40 CFR 60 - "New Source Performance Standards" (NSPS)	$ 1,067.00	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	$ 1,067.00	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	$ 1,067.00	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	$ 10,666.00	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	$ 5,333.00	2312
	20.11.60 NMAC, Non-Attainment Area Permit	$ 5,333.00	2313
	Not Applicable	*Not Applicable*	

III. MODIFICATION TO EXISTING PERMIT APPLICATION REVIEW FEES:

If the permit application is for a modification to an existing permit, please check all that apply. If this application is for a new stationary source facility, please see Section II.

Check All That Apply	Modifications	Review Fee	Program Element
Modification Application Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Proposed modification to an existing stationary source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	$ 1,067.00	2321
X	*Not Applicable*	*See Sections Below*	
Modification Application Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	$ 800.00	2322
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	$ 1,600.00	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	$ 3,200.00	2324
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	$ 4,800.00	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	$ 6,399.00	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	$7,999.00	2327
	Not Applicable	*See Section Above*	
Major Modifications Review Fees (In addition to the Modification Application Review Fees above)			
	20.11.60 NMAC, Permitting in Non-Attainment Areas	$ 5,333.00	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	$ 5,333.00	2334
X	*Not Applicable*	*Not Applicable*	
Federal Program Review Fees (This section applies only if a Federal Program Review is triggered by the proposed modification) (These fees are in addition to the Modification and Major Modification Application Review Fees above)			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	$ 1,067.00	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	$ 1,067.00	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	$ 1,067.00	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	$ 10,666.00	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	$ 5,333.00	2332
	20.11.60 NMAC, Non-Attainment Area Permit	$ 5,333.00	2333
X	*Not Applicable*	*Not Applicable*	

IV. ADMINISTRATIVE AND TECHNICAL REVISION APPLICATION REVIEW FEES:

If the permit application is for an administrative or technical revision of an existing permit issued pursuant to 20.11.41 NMAC, please check one that applies.

Check One	Revision Type	Review Fee	Program Element
	Administrative Revisions	$ 250.00	2340
	Technical Revisions	$ 500.00	2341
X	*Not Applicable*	*See Sections II, III or V*	

V. PORTABLE STATIONARY SOURCE RELOCATION FEES:

If the permit application is for a portable stationary source relocation of an existing permit, please check one that applies.

Check One	Portable Stationary Source Relocation Type	Review Fee	Program Element
	No New Air Dispersion Modeling Required	$ 500.00	2501
	New Air Dispersion Modeling Required	$ 750.00	2502
X	*Not Applicable*	*See Sections II, III or V*	

VI. Please submit a check or money order in the amount shown for the total application review fee.

Section Totals	Review Fee Amount
Section II Total	$1904.00
Section III Total	$
Section IV Total	$
Section V Total	$
Total Application Review Fee	**$ 1904.00**

I, the undersigned, a responsible official of the applicant company, certify that to the best of my knowledge, the information stated on this checklist, give a true and complete representation of the permit application review fees which are being submitted. I also understand that an incorrect submittal of permit application reviews may cause an incompleteness determination of the submitted permit application and that the balance of the appropriate permit application review fees shall be paid in full prior to further processing of the application.

Signed this 3 **day of** 10 **20_16**

David W. Harris — **Print Name**

Executive VP for Administration, COO, CFO — **Print Title**

Signature

Definition of Qualified Small Business as defined in 20.11.2 NMAC:
"Qualified small business" means a business that meets all of the following requirements:

(1) a business that has 100 or fewer employees;
(2) a small business concern as defined by the federal Small Business Act;
(3) a source that emits less than 50 tons per year of any individual regulated air pollutant, or less than 75 tons per year of all regulated air pollutants combined; and
(4) a source that is not a major source or major stationary source.

Note: Beginning January 1, 2011, and every January 1 thereafter, an increase based on the consumer price index shall be added to the application review fees. The application review fees established in Subsection A through D of 20.11.2.18 NMAC shall be adjusted by an amount equal to the increase in the consumer price index for the immediately-preceding year. Application review fee adjustments equal to or greater than fifty cents ($0.50) shall be rounded up to the next highest whole dollar. Application review fee adjustments totaling less than fifty cents ($0.50) shall be rounded down to the next lowest whole dollar. The department shall post the application review fees on the city of Albuquerque environmental health department air quality program website.

City of Albuquerque

Environmental Health Department
Air Quality Program

Permit Application Checklist

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to ruling a submitted application complete each application submitted shall contain the required items listed below. **This checklist must be returned with the application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

All applicants shall:

1. Fill out and submit the *Pre-permit Application Meeting Request* form
   a. ☑ Attach a copy to this application

2. Attend the pre-permit application meeting
   a. ☑ Attach a copy of the completed *Pre-permit Application Meeting Checklist* to this application

3. Provide public notice to the appropriate parties
   a. ☑ Attach a copy of the completed *Notice of Intent to Construct* form to this form
      i. Neighborhood Association(s): Campus NA, Coalition of Neighborhood Associations, District 6, Nob Hill NA, North Campus NA, Silver Hill NA, Spruce Park NA, Summit Park NA, Sycamore NA
      ii. Coalition(s): _____
   b. ☑ Attach a copy of the completed *Public Sign Notice Guideline* form

4. Fill out and submit the *Permit Application*. All applications shall:

   A. ☑ be made on a form provided by the Department. Additional text, tables, calculations or clarifying information may also be attached to the form.

   B. ☑ at the time of application, include documentary proof that all applicable permit application review fees have been paid as required by 20 NMAC 11.02. Please refer to the attached permit application worksheet.

   C. ☑ contain the applicant's name, address, and the names and addresses of all other owners or operators of the emission sources.

D. ☑ contain the name, address, and phone number of a person to contact regarding questions about the facility.

E. ☑ indicate the date the application was completed and submitted

F. ☑ contain the company name, which identifies this particular site.

G. ☑ contain a written description of the facility and/or modification including all operations affecting air emissions.

H. ☑ contain the maximum and standard operating schedules for the source after completion of construction or modification in terms of hours per day, days per week, and weeks per year.

I. ☑ provide sufficient information to describe the quantities and nature of any regulated air contaminant (including any amount of a hazardous air pollutant) that the source will emit during:

- Normal operation
- Maximum operation
- Abnormal emissions from malfunction, start-up and shutdown

J. ☑ include anticipated operational needs to allow for reasonable operational scenarios to avoid delays from needing additional permitting in the future.

K. ☐ contain a map, such as a 7.5-minute USGS topographic quadrangle, showing the exact location of the source; and include physical address of the proposed source.

L. ☑ contain an aerial photograph showing the proposed location of each process equipment unit involved in the proposed construction, modification, relocation, or technical revision of the source except for federal agencies or departments involved in national defense or national security as confirmed and agreed to by the department in writing.

M. ☑ contain the UTM zone and UTM coordinates.

N. ☑ include the four digit Standard Industrialized Code (SIC) and the North American Industrial Classification System (NAICS).

O. ☑ contain the types and **potential emission rate** amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

P. ☑ contain the types and **controlled** amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

Q. ☑ contain the basis or source for each emission rate (include the manufacturer's specification sheets, AP-42 Section sheets, test data, or other data when used as the source).

R. ☑ contain all calculations used to estimate **potential emission rate** and **controlled** emissions.

S. ☑ contain the basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design drawings, test reports, and factors which affect the normal operation (e.g. limits to normal operation).

T. ☑ contain fuel data for each existing and/or proposed piece of fuel burning equipment.

U. ☐ contain the anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification. N/A

V. ☑ contain the stack and exhaust gas parameters for all existing and proposed emission stacks.

W. ☐ provide an ambient impact analysis using a atmospheric dispersion model approved by the US Environmental Protection Agency (EPA), and the Department to demonstrate compliance with the ambient air quality standards for the City of Albuquerque and Bernalillo County (See 20.11.01 NMAC). If you are modifying an existing source, the modeling must include the emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions. N/A

X. ☐ contain a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown. N/A

Y. ☐ contain a process flow sheet, including a material balance, of all components of the facility that would be involved in routine operations. Indicate all emission points, including fugitive points. N/A

Z. ☐ contain a full description, including all calculations and the basis for all control efficiencies presented, of the equipment to be used for air pollution control. This shall include a process flow sheet or, if the Department so requires, layout and assembly drawings, design plans, test reports and factors which affect the normal equipment operation, including control and/or process equipment operating limitations. N/A

AA. ☐ contain description of the equipment or methods proposed by the applicant to be used for emission measurement. N/A

BB. ☑ be signed under oath or affirmation by a corporate officer, authorized to bind the company into legal agreements, certifying to the best of his or her knowledge the truth of all information submitted.

Richard J. Berry, Mayor

Environmental Health Department

Air Quality Program

Interoffice Memorandum

Mary Lou Leonard, Director

TO: MIKE BUCHANAN

FROM: CALE KANACK, ENVIRONMENTAL HEALTH SPECIALIST

SUBJECT: DETERMINATION OF NEIGHBORHOOD ASSOCIATIONS AND COALITIONS WITHIN 0.5 MILES OF 800 YALE BLVD NE, ALBUQUERQUE, NM 87106

DATE: 9/16/2016

DETERMINATION:

On 9/16/2016, I used the City of Albuquerque Zoning Advanced Map Viewer (http://sharepoint.cabq.gov/gis) to review which City of Albuquerque Neighborhood Associations (NAs) and Neighborhood Coalitions (NCs) are located within 0.5 miles of the UNM Zimmerman Library located at 800 Yale Blvd NE, Albuquerque, NM 87106 in Bernalillo County.

I then used the City of Albuquerque Office of Neighborhood Coordination Monthly Neighborhood Association List dated September 1, 2016 to determine the contact information for each NA and NC populated by the Zoning Advanced Map Viewer.

Duplicates have been deleted. Contact information is as follows:

COA Association or Coalition	Name	Email or Mailing Address
Campus NA	Ed Blandford	edblandford@gmail.com
Campus NA	Sara Osborne	saralosborne@gmail.com
Campus NA	NA Email	campus.neighborhood.assoc@gmail.com
Coalition of NAs, District 6	Nancy Bearce	nancymbearce@gmail.com
Coalition of NAs, District 6	Gina Dennis	ginadennis@relerience.com
Nob Hill NA	Ron Halbgewachs	ronhalbgewachs@peoplepc.com
Nob Hill NA	Shani Madden	shanikm@me.com
North Campus NA	Julianna Koob	koobjulie@yahoo.com
North Campus NA	Sandra Penn	sandra.penn@gmail.com
Silver Hill NA	James Montalbano	ja.montalbano@comcast.net
Silver Hill NA	Elizabeth Doak	1606 Silver Ave SE Albuquerque, NM 87106
Spruce Park NA	Peter Feibelman	1401 Sigma Chi Rd NE Albuquerque, NM 87106
Spruce Park NA	Alan Paxton	paxtona@swcp.com
Spruce Park NA	NA Email	spnassociation@gmail.com
Summit Park NA	Daniel Jones	danjones1@hotmail.com
Summit Park NA	Fran A'Hern Smith	franahernsmith@gmail.com
Sycamore NA	Peter Schillke	pschillke@gmail.com

Pre-Permit Application Meeting Request Form

Air Quality Program- Environmental Health Department

Please complete appropriate boxes and email to aqd@cabq.gov or mail to:

Environmental Health Department
Air Quality Program
P.O. Box 1293
Room 3047
Albuquerque, NM 87103

Name:	**Mike Buchanan/Kyle Duran**
Company/Organization:	The University of New Mexico
Point of Contact: **(phone number and email):** **Preferred form of contact (circle one):** Phone E-mail	Phone: 505-277-2766 Email: mbuchanan85@unm.edu CC: kyled10@unm.edu
Preferred meeting date/times:	Tuesday, June 14th 2016/1:00pm to 5:00pm
Description of Project:	Permitting generators at UNM Campus for three separate units; and process to get them permitted.

City of Albuquerque

Environmental Health Department
Air Quality Program

Pre-Permit Application Meeting Checklist

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to submitting an application, the applicant shall contact the department in writing and request a pre-application meeting for information regarding the contents of the application and the application process. This checklist is provided to aid the applicant and **a copy must be submitted with the application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

Name: Chemanji Shu- Nyamboli
Contact: 1801 Tucker Rd NE Albuquerque NM 87131
Company/Business: University of New Mexico

Fill out and submit a Pre-Permit Application Meeting Request form
⇒ Available online at http://www.cabq.gov/airquality

Emission Factors and Control Efficiencies
Notes:

Air Dispersion modeling guidelines and protocol
Notes:

None Required.

Department Policies
Notes:
Complete application forms, checklists and submit with application review fees.

Air quality permit fees
Notes: Include payment of permit fees with application.

Ver. 11/13

Public notice requirements

- Replacement Part 41 Implementation
  - *20.11.41.*13 B. Applicant's public notice requirements
    - Providing public notice to neighborhood association/coalitions
      - Neighborhood association:_____
      - Coalition: _____

      Notes:

Obtained CoA Association list from Cale Kanack at City of Albuquerque, for public notice requirement.

    - Posting and maintaining a weather-proof sign

      Notes:

Regulatory timelines

- 30 days to rule application complete
- 90 days to issue completed permit
- Additional time allotted if there is significant public interest and/or a significant air quality issue
  - Public Information Hearing
  - Complex permitting action

Notes:

City of Albuquerque- Environmental Health Department
Air Quality Program- Permitting Section
Phone: (505) 768-1972 Email: aqd@cabq.gov

Notice of Intent to Construct

Under 20.11.41.13B NMAC, the owner/operator is required to *provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are with-in one-half mile of the exterior boundaries of the property on which the source is or is proposed to be located* if they propose to construct or establish a new facility or make modifications to an existing facility that is subject to 20.11.41 NMAC – Construction Permits. **A copy of this form must be included with the application.**

Applicant's Name and Address: University of New Mexico, 1800 Roma Ave. NE

Owner / Operator's Name and Address: UNM 1800 Roma Ave NE

Actual or Estimated Date the Application will be submitted to the Department: October 15, 2016

Exact Location of the Source or Proposed Source: 203 Cornell Dr. NE

Description of the Source: Emergency generator for backup power at Popejoy Hall.

Nature of the Business: Higher Education

Process or Change for which the permit is requested: New permit. Replacing old, existing emergency generators with new ones.

Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:

Initial Construction Permit

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)
CO	2.75	12.03
NOx	3.17	13.87
SO2	0.98	4.3
VOC		
TSP	0.16	0.69
PM10		
PM2.5		
VHAP		

Net Changes In Emissions

(Only for permit Modifications or Technical Revisions)

	lbs/hr	tpy	Estimated Total TPY
CO	+/-	+/-	
NOx	+/-	+/-	
SO2	+/-	+/-	
VOC	+/-	+/-	
TSP	+/-	+/-	
PM10	+/-	+/-	
PM2.5	+/-	+/-	
VHAP	+/-	+/-	

Maximum Operating Schedule: 200 hrs/yr

Normal Operating Schedule: ~ 30 minutes per month

Current Contact Information for Comments and Inquires:

Name: Mike Buchanan
Address: 1801 Tucker Ave. NE
Phone Number: 505-277-3377

Ver.11/13

E-Mail Address:

If you have any comments about the construction or operation of the above facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to the address below:

Environmental Health Manager

Stationary Source Permitting

Albuquerque Environmental Health Department

Air Quality Program

PO Box 1293

Albuquerque, New Mexico 87103

(505) 768-1972

Other comments and questions may be submitted verbally.

Please refer to the company name and facility name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit application at the time of this notice. Please include a legible mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, if required, the Department's notice will be published in the legal section of the Albuquerque Journal and mailed to neighborhood associations and neighborhood coalitions near the facility location or near the facility proposed location.

City of Albuquerque

Environmental Health Department
Air Quality Program

Public Notice Sign Guidelines

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. *Prior to submitting an application, the applicant shall post and maintain a weather-proof sign provided by the department. The applicant shall keep the sign posted until the department takes final action on the permit application; if an applicant can establish to the department's satisfaction that the applicant is prohibited by law from posting, at either location required, the department may waive the posting requirement and may impose different notification requirements.* **A copy of this form must be submitted with your application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

Name: Popejoy Hall
Contact: Michael J Buchanan / Che Nyumboli
Company/Business: University of New Mexico

☑ The sign must be posted at the more visible of either the proposed or existing facility entrance (or, if approved in advance and in writing by the department, at another location on the property that is accessible to the public)

☑ The sign shall be installed and maintained in a condition such that members of the public can easily view, access, and read the sign at all times.

☑ The lower edge of the sign board should be mounted a minimum of 2' above the existing ground surface to facilitate ease of viewing

☐ Attach a picture of the completed, properly posted sign to this document

☐ **Check here if the department has waived the sign posting requirement.**
Alternative public notice details:

Ver. 11/13


PROPOSED AIR QUALITY CONSTRUCTION PERMIT
1. Applicant's Name: Economics Building Address: 915 Roma Ave NE
Owner or Operator's Name: University of New Mexico
Owner or Operator's Address: 1800 Roma Ave
Actual or Estimated Date the Application will be Submitted to the Department:
2. Exact Location of the Source or Proposed Source: 915 Roma Ave NE
3. Description of the Source: Emergency Generator
Nature of the Business: Higher Education
Process or Change for which the permit is being requested: New Permit Replacing existing generator
Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:
Initial Construction Permit
Net Changes in Emissions
CO 0.56 0.06
NOx 0.53 0.05
SO2 0.14 0.01
VOC
TSP 0.05 0.004
PM10
PM2.5
VHAP
4. Maximum Operating Schedule: 200 hr / yr
Normal Operating Schedule: 30 min / mo
5. Current Contact Information for Comments and Inquires:
Name: Che Nyamboli
Address: 1801 Tucker Ave
Phone Number: (505) 277-2766
E-Mail Address:
THIS SIGN SHALL REMAIN POSTED UNTIL THE DEPARTMENT TAKES FINAL ACTION ON THE PERMIT APPLICATION
PROPOSED AIR QUALITY CONSTRUCTION PERMIT
Zimmerman Library
University of New Mexico
Emergency Generator
Higher Education
New Permit Replacing existing generator
PROPOSED AIR QUALITY CONSTRUCTION PERMIT

PROPOSED AIR QUALITY CONSTRUCTION PERMIT

1. Applicant's Name: Popejoy Hall Address: 1812 Sigma Chi Road
   Owner or Operator's Name: University of New Mexico
   Owner or Operator's Address: 1800 Roma Ave NE
   Actual or Estimated Date the Application will be Submitted to the Department:
2. Exact Location of the Source or Proposed Source: 1812 Sigma Chi Rd.
3. Description of the Source: Emergency Generator
   Nature of the Business: Higher Education
   Process or Change for which the permit is being requested: Replacing existing generator

Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:

Initial Construction Permit

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)
CO	2.75	~~0.27 0.27 12.03~~
NOx	3.17	~~13.87~~ 0.32
SO2	0.98	~~0.09~~
VOC		
TSP	0.16	~~0.69~~ 0.01
PM10		
PM2.5		
VHAP		

Net Changes In Emissions
(for permit Modifications or Technical Revisions)

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)	Estimated Total Tons Per Year
CO	+/-	+/-	
NOx	+/-	+/-	
SO2	+/-	+/-	
VOC	+/-	+/-	
TSP	+/-	+/-	
PM10	+/-	+/-	
PM2.5	+/-	+/-	
VHAP	+/-	+/-	

4. Maximum Operating Schedule: 200 hrs/yr
   Normal Operating Schedule: 30 min/mo
5. Current Contact Information for Comments and Inquires:
   Name: Che Nyamboli
   Address: 1801 Tucker Ave NE
   Phone Number: (505) 277-2766
   E-Mail Address: cshu@unm.edu

City of Albuquerque - Environmental Health Department - Air Quality Program - Stationary Source Permitting
Phone Number (505) 768-1972 E-Mail Address: aqd@cabq.gov

THIS SIGN SHALL REMAIN POSTED UNTIL THE DEPARTMENT TAKES FINAL ACTION ON THE PERMIT APPLICATION


Johnson Field
Recreational Services
University Art Museum
Popejoy Hall
Administration Office
Rodey Theatre
Yale Blvd NE
Redondo Dr NE
Redondo Dr NE
Redondo Dr NE
Redondo Dr NE
Yale Park
Rte 66
Central Ave NE
Rte 66
Central Ave NE
Rte 66
Central Ave NE
Central Ave SE
Q Ramen and Curry House
Jimmy John's
McDonald's
Harvard Dr SE
Cornell Dr SE
Stanford Dr SE
Columbia Dr SE
Frontier
Einstein Bros. Bagels
Saggios
Cheba Hut
Google
Map

City of Albuquerque

Environmental Health Department
Air Quality Program

Permit Application Review Fee Instructions

All source registration, authority-to-construct, and operating permit applications for stationary or portable sources shall be charged an application review fee according to the fee schedule in 20.11.2 NMAC. These filing fees are required for both new construction, reconstruction, and permit modifications applications. Qualified small businesses as defined in 20.11.2 NMAC may be eligible to pay one-half of the application review fees and 100% of all applicable federal program review fees.

Please fill out the permit application review fee checklist and submit with a check or money order payable to the "City of Albuquerque Fund 242" and either:

1. be delivered in person to the Albuquerque Environmental Health Department, 3rd floor, Suite 3023 or Suite 3027, Albuquerque-Bernalillo County Government Center, south building, One Civic Plaza NW, Albuquerque, NM or,

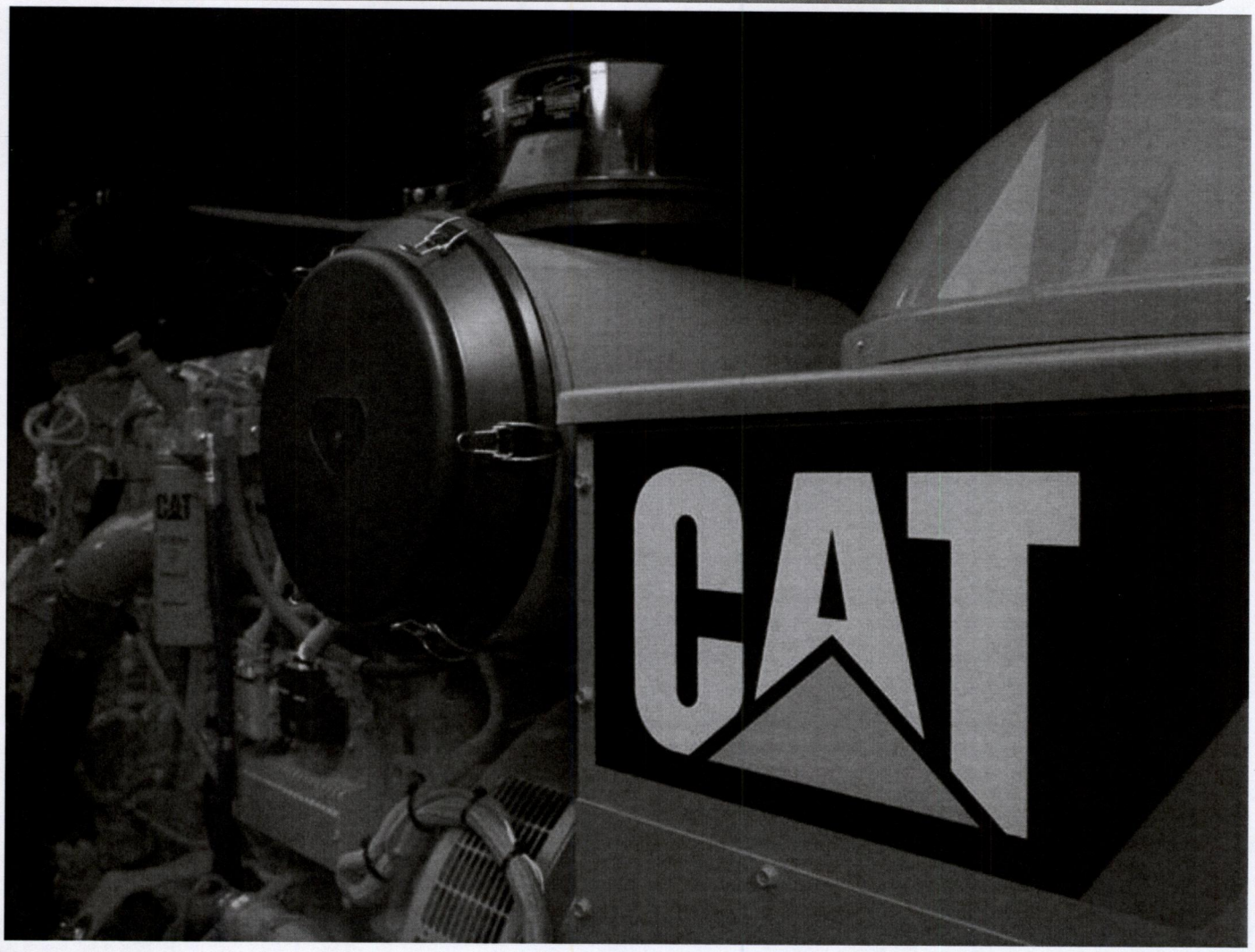
2. mailed to Attn: Air Quality Program, Albuquerque Environmental Health Department, P.O. Box 1293, Albuquerque, NM 87103.

The department will provide a receipt of payment to the applicant. The person delivering or filing a submittal shall attach a copy of the receipt of payment to the submittal as proof of payment Application review fees shall not be refunded without the written approval of the manager. If a refund is requested, a reasonable professional service fee to cover the costs of staff time involved in processing such requests shall be assessed. Please refer to 20.11.2 NMAC (effective January 10, 2011) for more detail concerning the "Fees" regulation as this checklist does not relieve the applicant from any applicable requirement of the regulation.

THE UNIVERSITY of NEW MEXICO

SUBMITTAL

POPEJOY HALL



WAGNER POWER SYSTEMS

CAT

CAT C9 DIESEL GENSET
300ekW STANDBY

CATERPILLAR®

WHERE THE WORLD TURNS FOR POWER

Wagner Power Systems
4000 Osuna Rd NE
Albuquerque, NM 87109
(505) 345-8411
Fax (505) 344-2582
http://wagnerequipment.cat.com

CATERPILLAR 300 KW 208Y/120V STANDBY GENERATOR SET

ENGINEERING SUBMITTAL

PRIME ELECTRIC

July 29, 2016

PROJECT: UNM Popejoy Hall

EQUIPMENT: Caterpillar 300kw 208Y/120V Standby Generator Set

Jim Cumiford:
Inside Sales Engineer
Wagner Power Systems
Phone: 505-343-2774
E-mail: jcumiford@wagnerequipment.com

Rodney Sanchez
Sales Engineer
Wagner Power Systems
Phone: 505-343-2773
E-mail: rsanchez@wagnerequipment.com

Mona Upson:
Project Manager
Wagner Power Systems
Phone: 505-343-2765
Fax: 505-344-2582
E-mail: mupson@wagnerequipment.com

Index

Prime Electric - UNM – Popejoy Hall

Bill of Materials

Wagner Power Systems
4000 Osuna Road NE, Albuquerque, NM 87109
Ph: (505) 343-2774 Fx: (505) 344-2582 Mb: (505) 401-1560

CSQ#: 30154064.01.62
Date: 08/01/2016
Valid Until: 08/31/2016
Prepared by: James Cumiford

Prepared for: 00000

Project name: UNM Main Electrical Gear Replacement - Rebid (2)
Project location: UNM Campus, Albuquerque, NM
Notes/Comments: Wagner takes acception to specification sections 263213, 263623, Addendum 1, Addendum 2. We are offering standard Caterpillar engineered product that complies with the minimum functional intent of the specification providing the following value engineered solution.

*** BUILDING 62 - POPEJOY HALL ***

Description	Qty
Item A - Caterpillar® C9 PGAN factory packaged generator set - diesel	1
EPA T3 emission certified for US stationary emergency only	
UL2200 listed package, NFPA 99/110 compliant	
ISO8528 rated 300 kW 375 kVA for emergency standby electrical service	
208Y/120 volt, 3-phase, 4-wire, 60 hertz	
UL508 EMCP 4.2 electronic modular control panel w/Modbus RTU communications	
NFPA 99/110 annunciation panel - remote (supplied loose)	
Emergency stop break glass station (supplied loose)	
Weather protective enclosure (std) (82 dBA @ 7 meter SPL) -white	
UL142 closed top double wall fuel tank base 660-gallons/24-hour capacity	
Spill containment, lockable fuel cap, level gauge, sender, vents, reliefs	
Generator LC5014 frame, PMG excitation, integrated voltage regulator	
1st UL489 circuit breaker 800AF 3-pole LSI 100% rated electronic trip	
2nd UL489 circuit breaker 250AF 3-pole LSI 100% rated electronic trip	
UL1236 battery charger 10 amp multi rate with NFPA alarms	
24 vdc engine starting battery set, cables, mounting tray	
Engine jacket water heater 120 volt 1-phase	
Standard 2-year zero deductible standby warranty	
Standard on-site startup, resistive load test & owner training services	
Estimated ready to ship 7 - 10 weeks upon receipt of approved order	

Notes/comments/exceptions:

Standard factory ground shipping arranged, prepaid & added (freight not included)
All off loading, handling, installation and fuel by others
The generator set is factory powder coat painted white, the automatic transfer switch is ansi gray.

For questions concerning this document please contact:

James Cumiford (505) 401-1560 JCumiford@WagnerEquipment.com

Effective with sales to the first user on or after May 1, 2016

CATERPILLAR LIMITED WARRANTY

Industrial, Petroleum, Locomotive, and Agriculture Engine Products and Electric Power Generation Products

Worldwide

Caterpillar Inc. or any of its subsidiaries ("Caterpillar") warrants new and remanufactured engines and new and rebuild electric power generation products sold by it (including any products of other manufacturers packaged and sold by Caterpillar), to be free from defects in material and workmanship.

This warranty does not apply engines sold for use in on-highway vehicle or marine applications; engines in machines manufactured by or for Caterpillar; C175, 3500 and 3600 series engines used in locomotive applications; 3000 Family engines, C0.5 through C4.4 and ACERT™ (C6.6, C7, C7.1, C9, C9.3, C11, C13, C15, C18, C27, and C32) engines used in industrial, mobile agriculture and locomotive applications; or Cat® batteries. These products are covered by other Caterpillar warranties.

This warranty is subject to the following:

Warranty Period

- For industrial engines, engines in a petroleum applications or Petroleum Power Systems (excluding petroleum fire pump application), or engines in a Locomotive application, or Uninterruptible Power Supply (UPS) systems, the warranty period is 12 months after date of delivery to the first user.
- For engines used in petroleum fire pump and mobile agriculture applications the warranty period is 24 months after date of delivery to the first user.
- For controls only (EPIC), configurable and custom switchgear products, and automatic transfer switch products, the warranty period is 24 months after date of delivery to the first user.
- For new CG132, CG170 and CG260 series power generation products the warranty period is 24 months/16,000 hours, whichever comes first, after date of delivery to first user.
- For electric power generation products other than CG132, CG170 and CG260 series in prime or continuous applications the warranty period is 12 months. For standby applications the warranty period is 24 months/1000 hours. For emergency standby applications the warranty period is 24 months/400 hours. All terms begin after date of delivery to the first user.
- For Caterpillar rebuild electric power generation products the warranty period is 12 months, but not to exceed 24 months from shipment of rebuilt electric power generation product from Caterpillar.
- For all other applications the warranty period is 12 months after date of delivery to the first user.

Caterpillar Responsibilities

If a defect in material or workmanship is found during the warranty period, Caterpillar will, during normal working hours and at a place of business of a Cat dealer or other source approved by Caterpillar:

- Provide (at Caterpillar's choice) new, Remanufactured, or Caterpillar approved repaired parts or assembled components needed to correct the defect.

Note: New, remanufactured, or Caterpillar approved repaired parts or assembled components provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product in which installed as if such parts were original components of that product. Items replaced under this warranty become the property of Caterpillar.

- Replace lubricating oil, filters, coolant, and other service items made unusable by the defect.
- Provide reasonable and customary labor needed to correct the defect, including labor to disconnect the product from and reconnect the product to its attached equipment, mounting, and support systems, if required.

For new 3114, 3116, and 3126 engines and, new and Caterpillar rebuild electric power generation products (which includes the following: any new products of other manufacturers packaged and sold by Caterpillar)

- Provide travel labor, up to four hours round trip, if in the opinion of Caterpillar, the product cannot reasonably be transported to a place of business of a Cat dealer or other source approved by Caterpillar (travel labor in excess of four hours round trip, and any meals, mileage, lodging, etc. is the user's responsibility).

For all other products:

- Provide reasonable travel expenses for authorized mechanics, including meals, mileage, and lodging, when Caterpillar chooses to make the repair on-site.

User Responsibilities

The user is responsible for:

- Providing proof of the delivery date to the first user.
- Labor costs, except as stated under "Caterpillar Responsibilities," including costs beyond those required to disconnect the product from and reconnect the product to its attached equipment, mounting, and support systems.
- Travel or transporting costs, except as stated under "Caterpillar Responsibilities."
- Premium or overtime labor costs.
- Parts shipping charges in excess of those that are usual and customary.
- Local taxes, if applicable.
- Costs to investigate complaints, unless the problem is caused by a defect in Caterpillar material or workmanship.
- Giving timely notice of a warrantable failure and promptly making the product available for repair.
- Performance of the required maintenance (including use of proper fuel, oil, lubricants, and coolant) and items replaced due to normal wear and tear.
- Allowing Caterpillar access to all electronically stored data.

Limitations

Caterpillar is not responsible for:

- Failures resulting from any use or installation that Caterpillar judges improper.
- Failures resulting from attachments, accessory items, and parts not sold or approved by Caterpillar.
- Failures resulting from abuse, neglect, and/or improper repair.
- Failures resulting from user's delay in making the product available after being notified of a potential product problem.
- Failures resulting from unauthorized repairs or adjustments, and unauthorized fuel setting changes.
- Damage to parts, fixtures, housings, attachments, and accessory items that are not part of the engine, Cat Selective Catalytic Reduction System or electric power generation product (including any products of other manufacturers packaged and sold by Caterpillar).
- Repair of components sold by Caterpillar that is warranted directly to the user by their respective manufacturer. Depending on type of application, certain exclusions may apply. Consult your Cat dealer for more information.

(Continued on reverse side...)

This warranty covers every major component of the products. Claims under this warranty should be submitted to a place of business of a Cat dealer or other source approved by Caterpillar. For further information concerning either the location to submit claims or Caterpillar as the issuer of this warranty, write Caterpillar Inc., 100 N. E. Adams St., Peoria, IL USA 61629.

Caterpillar's obligations under this Limited Warranty are subject to, and shall not apply in contravention of, the laws, rules, regulations, directives, ordinances, orders, or statutes of the United States, or of any other applicable jurisdiction, without recourse or liability with respect to Caterpillar.

A) For products operating outside of Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands and Tahiti, the following is applicable:

NEITHER THE FOREGOING EXPRESS WARRANTY NOR ANY OTHER WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED, IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXCEPT CATERPILLAR EMISSION-RELATED COMPONENTS WARRANTIES FOR NEW ENGINES, WHERE APPLICABLE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISION OF MATERIAL AND SERVICES, AS SPECIFIED HEREIN.

CATERPILLAR IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

For personal or family use engines or electric power generation products, operating in the USA, its territories and possessions, some states do not allow limitations on how long an implied warranty may last nor allow the exclusion or limitation of incidental or consequential damages. Therefore, the previously expressed exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary by jurisdiction. To find the location of the nearest Cat dealer or other authorized repair facility, call (800) 447-4986. If you have questions concerning this warranty or its applications, call or write:

In USA and Canada: Caterpillar Inc., Engine Division, P. O. Box 610, Mossville, IL 61552-0610, Attention: Customer Service Manager, Telephone (800) 447-4986. Outside the USA and Canada: Contact your Cat dealer.

B) For products operating in Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands and Tahiti, the following is applicable:

THIS WARRANTY IS IN ADDITION TO WARRANTIES AND CONDITIONS IMPLIED BY STATUTE AND OTHER STATUTORY RIGHTS AND OBLIGATIONS THAT BY ANY APPLICABLE LAW CANNOT BE EXCLUDED, RESTRICTED OR MODIFIED ("MANDATORY RIGHTS"). ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED (BY STATUTE OR OTHERWISE), ARE EXCLUDED. WITHOUT LIMITING THE FOREGOING PROVISIONS OF THIS PARAGRAPH, WHERE A PRODUCT IS SUPPLIED FOR BUSINESS PURPOSES, THE CONSUMER GUARANTEES UNDER THE CONSUMER GUARANTEES ACT 1993 (NZ) WILL NOT APPLY.

NEITHER THIS WARRANTY NOR ANY OTHER CONDITION OR WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED (SUBJECT ONLY TO THE MANDATORY RIGHTS), IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

IF THE MANDATORY RIGHTS MAKE CATERPILLAR LIABLE IN CONNECTION WITH SERVICES OR GOODS, THEN TO THE EXTENT PERMITTED UNDER THE MANDATORY RIGHTS, THAT LIABILITY SHALL BE LIMITED AT CATERPILLAR'S OPTION TO (a) IN THE CASE OF SERVICES, THE SUPPLY OF THE SERVICES AGAIN OR THE PAYMENT OF THE COST OF HAVING THE SERVICES SUPPLIED AGAIN AND (b) IN THE CASE OF GOODS, THE REPAIR OR REPLACEMENT OF THE GOODS, THE SUPPLY OF EQUIVALENT GOODS, THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT GOODS.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

CATERPILLAR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES UNLESS IMPOSED UNDER MANDATORY RIGHTS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

C) For products supplied in Australia:

IF THE PRODUCTS TO WHICH THIS WARRANTY APPLIES ARE:

- **I. PRODUCTS OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION; OR**
- **II. PRODUCTS THAT COST AUD 40,000 OR LESS,**

WHERE THOSE PRODUCTS WERE NOT ACQUIRED FOR THE PURPOSE OF RE-SUPPLY OR FOR THE PURPOSE OF USING THEM UP OR TRANSFORMING THEM IN THE COURSE OF PRODUCTION OR MANUFACTURE OR IN THE COURSE OF REPAIRING OTHER GOODS OR FIXTURES, THEN THIS SECTION C APPLIES.

THE FOLLOWING MANDATORY TEXT IS INCLUDED PURSUANT TO THE AUSTRALIAN CONSUMER LAW AND INCLUDES REFERENCES TO RIGHTS THE USER MAY HAVE AGAINST THE DIRECT SUPPLIER OF THE PRODUCTS: OUR GOODS COME WITH GUARANTEES THAT CANNOT BE EXCLUDED UNDER THE AUSTRALIAN CONSUMER LAW. YOU ARE ENTITLED TO A REPLACEMENT OR REFUND FOR A MAJOR FAILURE AND COMPENSATION FOR ANY OTHER REASONABLY FORESEEABLE LOSS OR DAMAGE. YOU ARE ALSO ENTITLED TO HAVE THE GOODS REPAIRED OR REPLACED IF THE GOODS FAIL TO BE OF ACCEPTABLE QUALITY AND THE FAILURE DOES NOT AMOUNT TO A MAJOR FAILURE. THE INCLUSION OF THIS TEXT DOES NOT CONSTITUTE ANY REPRESENTATION OR ACCEPTANCE BY CATERPILLAR OF LIABILITY TO THE USER OR ANY OTHER PERSON IN ADDITION TO THAT WHICH CATERPILLAR MAY HAVE UNDER THE AUSTRALIAN CONSUMER LAW.

TO THE EXTENT THE PRODUCTS FALL WITHIN THIS SECTION C BUT ARE NOT OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION, CATERPILLAR LIMITS ITS LIABILITY TO THE EXTENT IT IS PERMITTED TO DO SO UNDER THE AUSTRALIAN CONSUMER LAW TO, AT ITS OPTION, THE REPAIR OR REPLACEMENT OF THE PRODUCTS, THE SUPPLY OF EQUIVALENT PRODUCTS, OR THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT PRODUCTS.

THE WARRANTY SET OUT IN THIS DOCUMENT IS GIVEN BY CATERPILLAR INC. OR ANY OF ITS SUBSIDIARIES, 100 N. E. ADAMS ST, PEORIA, IL USA 61629, TELEPHONE 1 309 675 1000, THE USER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH MAKING A CLAIM UNDER THE WARRANTY SET OUT IN THIS DOCUMENT, EXCEPT AS EXPRESSLY STATED OTHERWISE IN THIS DOCUMENT, AND THE USER IS REFERRED TO THE BALANCE OF THE DOCUMENT TERMS CONCERNING CLAIM PROCEDURES, CATERPILLAR RESPONSIBILITIES AND USER RESPONSIBILITIES.

TO THE EXTENT PERMISSIBLE BY LAW, THE TERMS SET OUT IN THE REMAINDER OF THIS WARRANTY DOCUMENT (INCLUDING SECTION B) CONTINUE TO APPLY TO PRODUCTS TO WHICH THIS SECTION C APPLIES.

ELECTRIC POWER - Technical Spec Sheet
STANDARD

C9 ACERT
300 ekW/ 375 kVA/ 60 Hz/ 1800 rpm/ 208V/ 0.8 Power Factor

Rating Type: STANDBY

Emissions: U.S. EPA Certified for Stationary Emergency Use Only (Tier 3 Nonroad Equivalent Emission Standards)

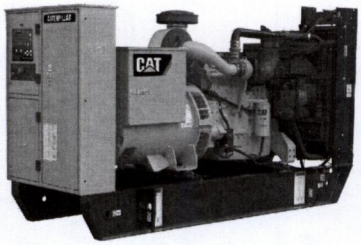


Image shown may not reflect actual configuration

C9 ACERT
300 ekW/ 375 kVA
60 Hz/ 1800 rpm/ 208V

	Metric	English
Package Performance		
Genset Power Rating with Fan @ 0.8 Power Factor	300 ekW	
Genset Power Rating	375 kVA	
Aftercooler (Separate Circuit)	N/A	N/A
Fuel Consumption		
100% Load with Fan	86.0 L/hr	22.7 gal/hr
75% Load with Fan	66.8 L/hr	17.6 gal/hr
50% Load with Fan	51.5 L/hr	13.6 gal/hr
25% Load with Fan	33.1 L/hr	8.7 gal/hr
Cooling System[1]		
Engine Coolant Capacity	13.9 L	3.7 gal
Inlet Air		
Combustion Air Inlet Flow Rate	26.0 m^3/min	916.6 cfm
Max. Allowable Combustion Air Inlet Temp	50 ° C	123 ° F
Exhaust System		
Exhaust Stack Gas Temperature	497.3 ° C	927.2 ° F
Exhaust Gas Flow Rate	69.7 m^3/min	2460.9 cfm
Exhaust System Backpressure (Maximum Allowable)	10.0 kPa	40.0 in. water

Rating Type: STANDBY

Emissions: U.S. EPA Certified for Stationary Emergency Use Only (Tier 3 Nonroad Equivalent Emission Standards)

Heat Rejection		
Heat Rejection to Jacket Water	120 kW	6838 Btu/min
Heat Rejection to Exhaust (Total)	320 kW	18223 Btu/min
Heat Rejection to Aftercooler	92 kW	5239 Btu/min
Heat Rejection to Atmosphere from Engine	23 kW	1312 Btu/min
Heat Rejection to Atmosphere from Generator	22 kW	1245 Btu/min

Alternator[2]	
Motor Starting Capability @ 30% Voltage Dip	683 skVA
Current	451 amps
Frame Size	LC5014J
Excitation	SE
Temperature Rise	150 ° C

Emissions (Nominal)[3]		
NOx	2196.0 mg/Nm³	4.0 g/hp-hr
CO	115.5 mg/Nm³	0.2 g/hp-hr
HC	23.1 mg/Nm³	0.1 g/hp-hr
PM	12.7 mg/Nm³	0.0 g/hp-hr

DEFINITIONS AND CONDITIONS

1. For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

2. UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

3. Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

Rating Type: STANDBY

Emissions: U.S. EPA Certified for Stationary Emergency Use Only (Tier 3 Nonroad Equivalent Emission Standards)

Applicable Codes and Standards:
AS1359, CSA C22.2 No100-04, UL142,UL489, UL869, UL2200,
NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528,
NEMA MG1-22,NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.

Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions

Fuel Rates are based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements, contact your Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

www.Cat-ElectricPower.com

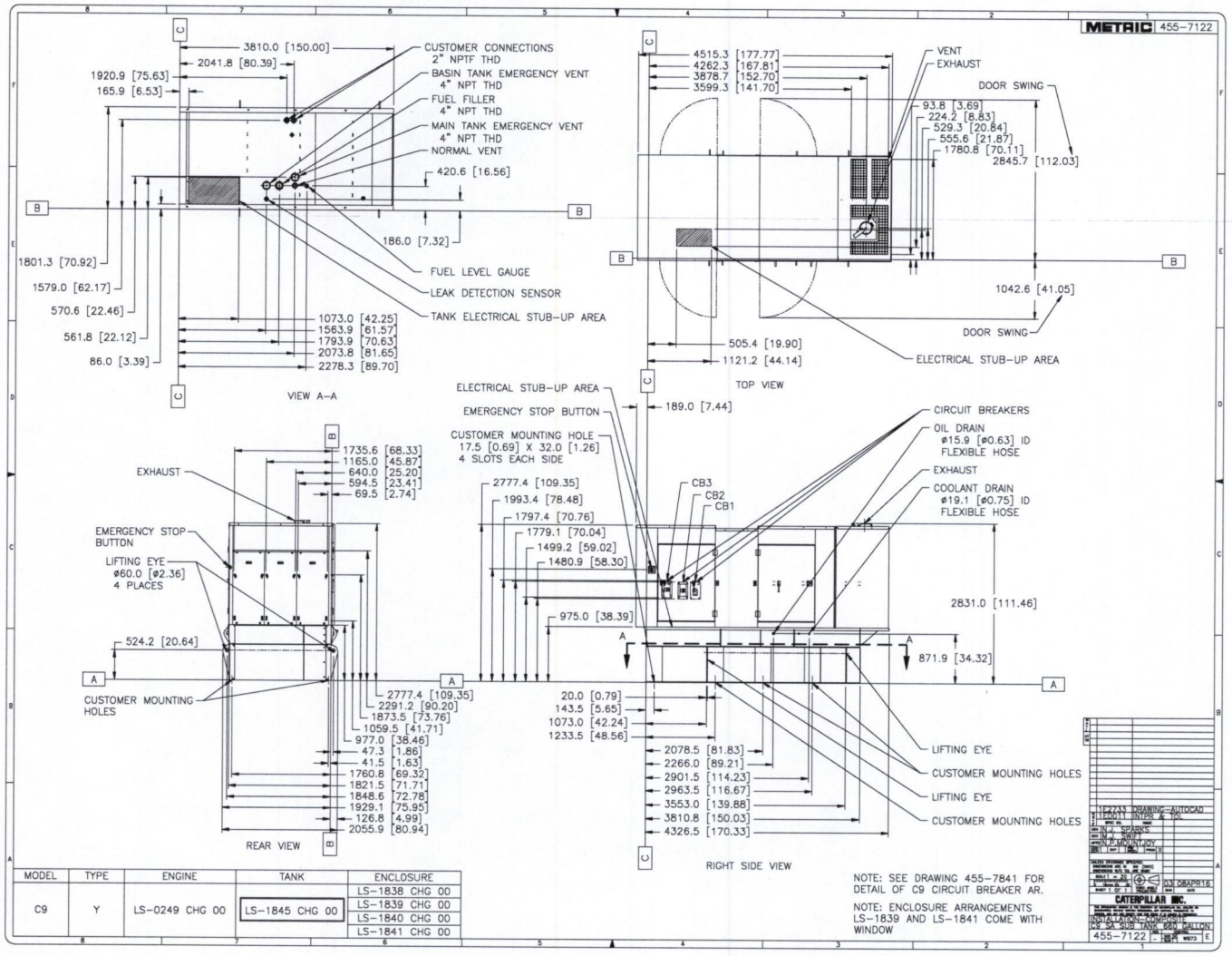
Performance No.: DM8168-04

Feature Code: C09DE48

Generator Arrangement: 4490575

Date: 07/05/2016

Source Country: U.S.



MODEL	TYPE	ENGINE	TANK	ENCLOSURE
C9	Y	LS-0249 CHG 00	LS-1845 CHG 00	LS-1838 CHG 00
				LS-1839 CHG 00
				LS-1840 CHG 00
				LS-1841 CHG 00

GENERATOR DATA

JULY 29, 2016

For Help Desk Phone Numbers Click here

Selected Model

Engine: C9	**Generator Frame:** LC5014L	**Genset Rating (kW):** 300.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4490579	**Genset Rating (kVA):** 375.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 1040.9
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41449 /41661 /8817

Spec Information

Generator Specification

Frame: LC5014L **Type:** LC	**No. of Bearings:** 1
Winding Type: RANDOM WOUND	**Flywheel:** 14.0
Connection: PARALLEL STAR	**Housing:** 1
Phases: 3	**No. of Leads:** 12
Poles: 4	**Wires per Lead:** 1
Sync Speed: 1800	**Generator Pitch:** 0.6667

Generator Efficiency

Per Unit Load	kW	Efficiency %
0.25	75.0	92.2
0.5	150.0	94.2
0.75	225.0	94.2
1.0	300.0	93.8

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X''_d	0.0953	0.0110
SUBTRANSIENT - QUADRATURE AXIS X''_q	0.1170	0.0135
TRANSIENT - SATURATED X'_d	0.1604	0.0185
SYNCHRONOUS - DIRECT AXIS X_d	3.5910	0.4143
SYNCHRONOUS - QUADRATURE AXIS X_q	2.1531	0.2484
NEGATIVE SEQUENCE X_2	0.1066	0.0123
ZERO SEQUENCE X_0	0.0069	0.0008

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T'_{d0}	2.2530
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T'_d	0.1000
OPEN CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_{d0}	0.0170
SHORT CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_d	0.0100
OPEN CIRCUIT SUBSTRANSIENT - QUADRATURE AXIS T''_{q0}	0.1830
SHORT CIRCUIT SUBSTRANSIENT - QUADRATURE AXIS T''_q	0.0100
EXCITER TIME CONSTANT T_e	0.0100
ARMATURE SHORT CIRCUIT T_a	0.0150

Short Circuit Ratio: 0.31	Stator Resistance = 0.0043 Ohms	Field Resistance = 0.343 Ohms

Voltage Regulation

Voltage level adustment: +/-	5.0%
Voltage regulation, steady state: +/-	0.5%
Voltage regulation with 3% speed change: +/-	0.5%
Waveform deviation line - line, no load: less than	2.0%
Telephone influence factor: less than	50

Generator Excitation

	No Load	Full Load, (rated) pf	
		Series	Parallel
Excitation voltage:	7.6 Volts	39.76 Volts	Volts
Excitation current	0.76 Amps	3.27 Amps	Amps

Selected Model

Engine: C9	**Generator Frame:** LC5014L	**Genset Rating (kW):** 300.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4490579	**Genset Rating (kVA):** 375.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 1040.9
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41449 /41661 /8817

Generator Mechanical Information

Center of Gravity

Dimension X	-530.0 mm	-20.9 IN.
Dimension Y	0.0 mm	0.0 IN.
Dimension Z	0.0 mm	0.0 IN.

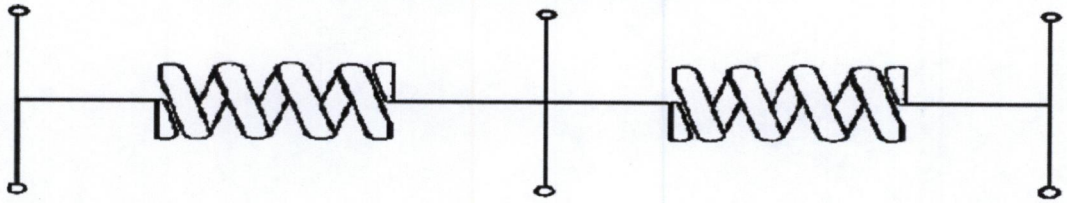
- "X" is measured from driven end of generator and parallel to rotor. Towards engine fan is positive. See General Information for details
- "Y" is measured vertically from rotor center line. Up is positive.
- "Z" is measured to left and right of rotor center line. To the right is positive.

Generator WT = 895 kg * Rotor WT = 357 kg * Stator WT = 538 kg
1,973 LB 787 LB 1,186 LB

Rotor Balance = 0.0508 mm deflection PTP

Overspeed Capacity = 125% of synchronous speed

Generator Torsional Data



J1 = Coupling and Fan **J2 = Rotor** **J3 = Exciter End**

TOTAL J = J1 + J2 + J3

K1 = Shaft Stiffness between J1 + J2 (Diameter 1)

K2 = Shaft Stiffness between J2 + J3 (Diameter 2)

J1	K1	Min Shaft Dia 1	J2	K2	Min Shaft Dia 2	J3
6.3 LB IN. s^2	37.0 MLB IN./rad	4.5 IN.	20.5 LB IN. s^2	41.7 MLB IN./rad	4.3 IN.	2.0 LB IN. s^2
0.711 N m s^2	4.18 MN m/rad	115.0 mm	2.32 N m s^2	4.71 MN m/rad	110.0 mm	0.23 N m s^2

Total J

28.9 LB IN. s^2

3.261 N m s^2

Selected Model

Engine: C9	**Generator Frame:** LC5014L	**Genset Rating (kW):** 300.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4490579	**Genset Rating (kVA):** 375.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 1040.9
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41449 /41661 /8817

Generator Cooling Requirements - Temperature - Insulation Data

Cooling Requirements:		**Temperature Data: (Ambient 40 ^{0}C)**	
Heat Dissipated:	19.8 kW	**Stator Rise:**	150.0 ^{0}C
Air Flow:	30.6 m^3/min	**Rotor Rise:**	150.0 ^{0}C

Insulation Class: H

Insulation Reg. as shipped: 100.0 MΩ minimum at 40 ^{0}C

Thermal Limits of Generator

Frequency:	60 Hz
Line to Line Voltage:	208 Volts
B BR 80/40	294.4 kVA
F BR -105/40	334.88 kVA
H BR - 125/40	368.0 kVA
F PR - 130/40	368.0 kVA
H PR - 150/40	390.08 kVA
H PR27 - 163/27	404.8 kVA

Selected Model

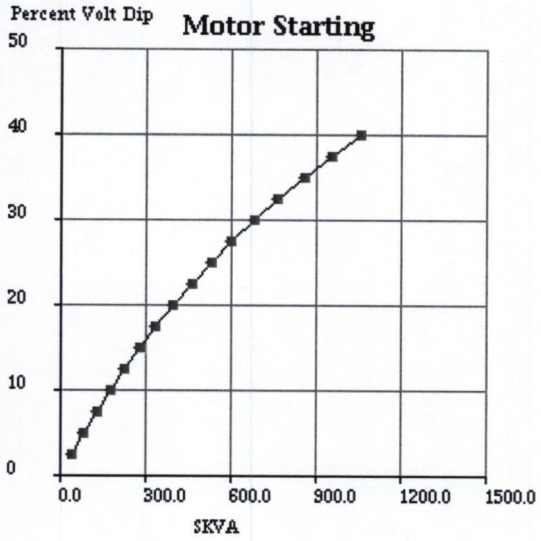
Engine: C9 **Generator Frame:** LC5014L **Genset Rating (kW):** 300.0 **Line Voltage:** 208
Fuel: Diesel **Generator Arrangement:** 4490579 **Genset Rating (kVA):** 375.0 **Phase Voltage:** 120
Frequency: 60 **Excitation Type:** Self Excited **Pwr. Factor:** 0.8 **Rated Current:** 1040.9
Duty: STANDBY **Connection:** PARALLEL STAR **Application:** EPG **Status:** Current

Version: 41764 /41449 /41661 /8817

Starting Capability & Current Decrement

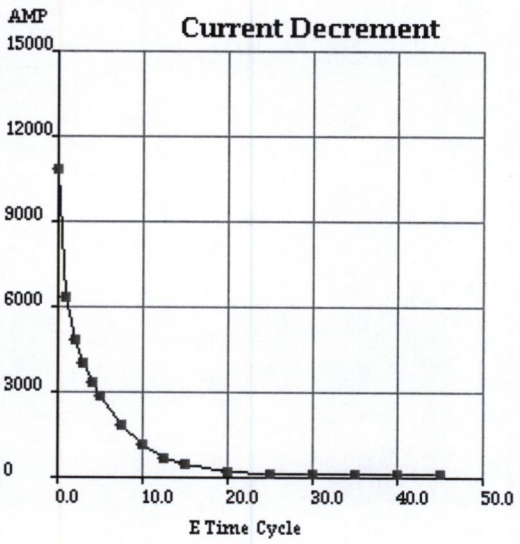
Motor Starting Capability (0.6 pf)

SKVA	Percent Volt Dip
41	2.5
84	5.0
129	7.5
177	10.0
227	12.5
280	15.0
337	17.5
397	20.0
461	22.5
530	25.0
603	27.5
681	30.0
765	32.5
856	35.0
953	37.5
1,059	40.0



Current Decrement Data

E Time Cycle	AMP
0.0	10,853
1.0	6,374
2.0	4,862
3.0	4,015
4.0	3,371
5.0	2,836
7.5	1,822
10.0	1,147
12.5	701
15.0	446
20.0	230
25.0	157
30.0	129
35.0	117
40.0	113
45.0	111



Instantaneous 3 Phase Fault Current: 10853 Amps **Instantaneous Line - Line Fault Current:** 8877 Amps
Instantaneous Line - Neutral Fault Current: 14877 Amps

Selected Model

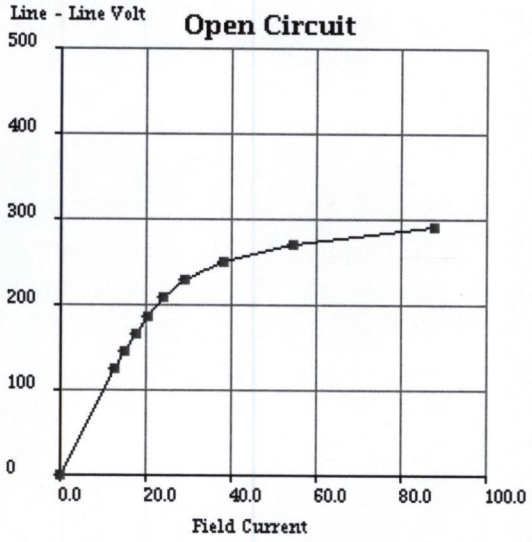
Engine: C9	**Generator Frame:** LC5014L	**Genset Rating (kW):** 300.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4490579	**Genset Rating (kVA):** 375.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 1040.9
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41449 /41661 /8817

Generator Output Characteristic Curves

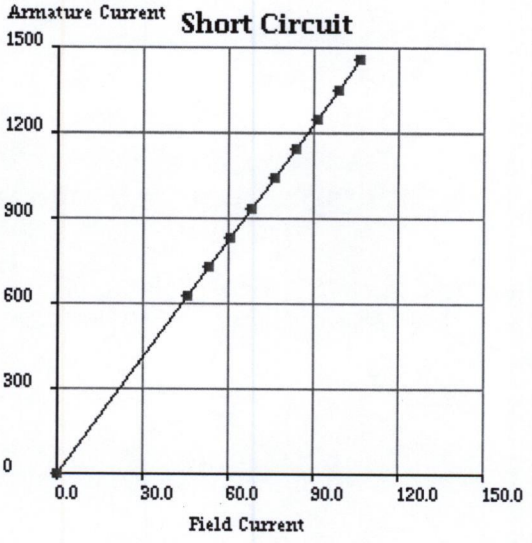
Open Circuit Curve

Field Current	Line - Line Volt
0.0	0
12.8	125
15.0	146
17.5	166
20.3	187
23.9	208
29.2	229
38.1	250
54.6	270
87.5	291



Short Circuit Curve

Field Current	Armature Current
0.0	0
45.7	625
53.3	729
60.9	833
68.5	937
76.1	1,041
83.7	1,145
91.3	1,249
98.9	1,353
106.5	1,457



Selected Model

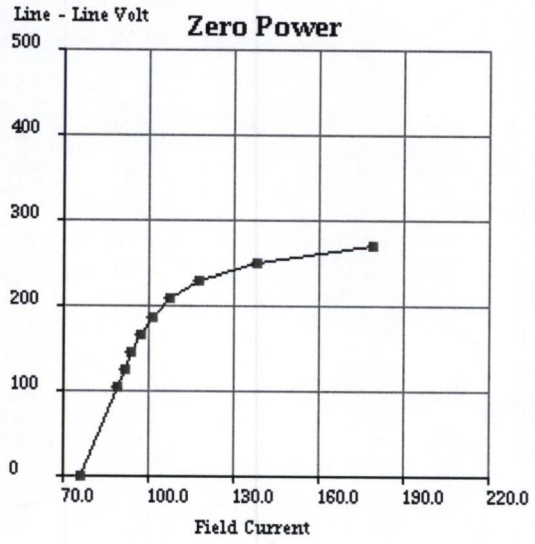
Engine: C9	**Generator Frame:** LC5014L	**Genset Rating (kW):** 300.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4490579	**Genset Rating (kVA):** 375.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 1040.9
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41449 /41661 /8817

Generator Output Characteristic Curves

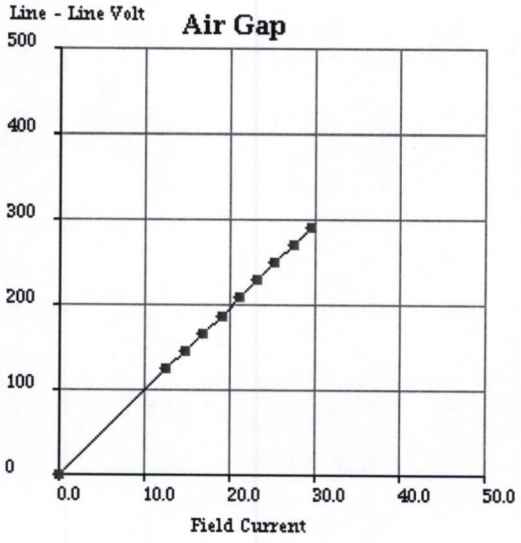
Zero Power Factor Curve

Field Current	Line - Line Volt
76.1	0
89.3	104
91.6	125
94.2	146
97.2	166
101.2	187
107.3	208
117.9	229
138.2	250
178.9	270



Air Gap Curve

Field Current	Line - Line Volt
0.0	0
12.6	125
14.7	146
16.9	166
19.0	187
21.1	208
23.2	229
25.3	250
27.4	270
29.5	291



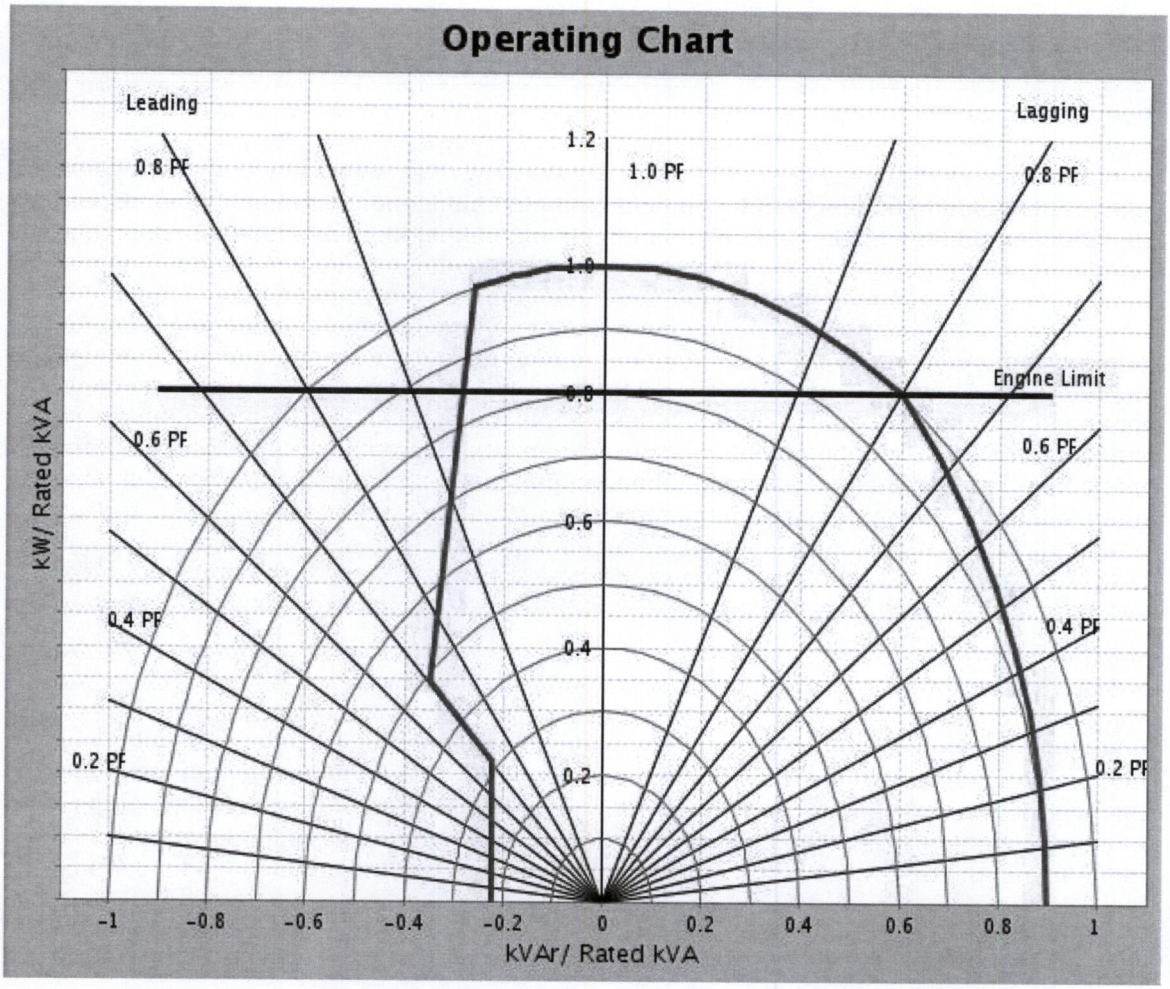
Selected Model

Engine: C9	**Generator Frame:** LC5014L	**Genset Rating (kW):** 300.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4490579	**Genset Rating (kVA):** 375.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 1040.9
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41449 /41661 /8817

Reactive Capability Curve

Click to view Chart


Operating Chart
Leading
Lagging
0.8 PF
1.0 PF
0.8 PF
1.2
1.0
0.8
Engine Limit
0.6 PF
0.6 PF
0.6
0.4 PF
0.4 PF
0.4
0.2 PF
0.2 PF
0.2
kW/ Rated kVA
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
kVAr/ Rated kVA

Selected Model

Engine: C9	**Generator Frame:** LC5014L	**Genset Rating (kW):** 300.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4490579	**Genset Rating (kVA):** 375.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 1040.9
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41449 /41661 /8817

General Information

GENERATOR INFORMATION (DM7900)

---

1. Motor Starting
Motor starting curves are obtained in accordance with IEC60034, and are displayed at 0.6 power factor.

2. Voltage Dip
Prediction of the generator synchronous voltage dip can be made by consulting the plot for the voltage dip value that corresponds to the desired motor starting kVA value.

3. Definitions
A) Generator Keys
Frame: abbreviation of generator frame size
Freq: frequency in hertz.
PP/SB: prime/standby duty respectively
Volts: line - line terminal voltage
kW: rating in electrical kilo watts
Model: engine sales model

B) Generator Temperature Rise
The indicated temperature rises are the IEC/NEMA limits for standby or prime power applications. The quoted rise figures are maximum limits only and are not necessarily indicative of the actual temperature rise of a given machine winding.

C) Centre of Gravity
The specified centre of gravity is for the generator only. For single bearing, and two bearing close coupled generators, the center of gravity is measured from the generator/engine flywheel-housing interface and from the centreline of the rotor Shaft.

For two bearing, standalone generators, the center of gravity is measured from the end of the rotor shaft and from the centerline of the rotor shaft.

D) Generator Current Decrement Curves
The generator current decrement curve indicates the generator armature current arising from a symmetrical three-phase fault at the generator terminals. Generators equipped with AREP or PMG excitation systems will sustain 300% of rated armature current for 10 seconds.

E) Generator Efficiency Curves
The efficiency curve is displayed for the generator only under the given conditions of rating, voltage, frequency and power factor. This is not the overall generating set efficiency curve.

PERFORMANCE DATA [DM8168]

JULY 29, 2016

For Help Desk Phone Numbers Click here

Perf No: DM8168

Change Level: 04

General | Heat Rejection | Emissions | Regulatory | Altitude Derate | Cross Reference | Perf Param Ref

View PDF

SALES MODEL:	C9	**COMBUSTION:**	DI
ENGINE POWER (BHP):	480	**ENGINE SPEED (RPM):**	1,800
GEN POWER W/O FAN (EKW):	319.0	**HERTZ:**	60
GEN POWER WITH FAN (EKW):	300.0	**FAN POWER (HP):**	36.5
COMPRESSION RATIO:	16.1	**ASPIRATION:**	TA
RATING LEVEL:	STANDBY	**AFTERCOOLER TYPE:**	ATAAC
PUMP QUANTITY:	1	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
FUEL TYPE:	DIESEL	**INLET MANIFOLD AIR TEMP (F):**	120
MANIFOLD TYPE:	DRY	**JACKET WATER TEMP (F):**	192.2
GOVERNOR TYPE:	ELEC	**TURBO CONFIGURATION:**	SINGLE
CAMSHAFT TYPE:	STANDARD	**TURBO QUANTITY:**	1
IGNITION TYPE:	CI	**TURBOCHARGER MODEL:**	S310-1.25
INJECTOR TYPE:	EUI	**CERTIFICATION YEAR:**	2005
REF EXH STACK DIAMETER (IN):	4	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	1,759.8
MAX OPERATING ALTITUDE (FT):	3,281		

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET

General Performance Data Top

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP
EKW	%	BHP	PSI	LB/BHP-HR	GAL/HR	IN-HG	DEG F	DEG F	IN-HG	DEG F
300.0	100	480	393	0.332	22.7	82.5	122.6	1,247.3	60.6	927.2
270.0	90	430	352	0.334	20.5	78.7	121.1	1,179.5	55.9	877.6
240.0	80	383	314	0.339	18.5	74.9	121.5	1,120.8	51.5	840.4
225.0	75	361	295	0.342	17.6	73.0	121.6	1,094.5	49.4	826.3
210.0	70	339	277	0.347	16.8	71.0	121.7	1,071.1	47.3	817.6
180.0	60	296	242	0.360	15.2	66.4	121.7	1,028.3	43.1	800.8
150.0	50	253	207	0.376	13.6	61.1	121.7	988.0	38.7	784.5
120.0	40	212	173	0.390	11.8	52.8	121.7	944.9	32.8	768.7
90.0	30	170	139	0.403	9.8	42.5	121.6	899.1	25.9	752.9
75.0	25	149	122	0.411	8.7	36.9	121.6	875.4	22.3	745.0
60.0	20	127	104	0.419	7.6	30.8	121.6	850.8	18.7	737.0
30.0	10	82.9	68	0.441	5.2	17.9	121.5	723.0	11.7	650.3

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	IN-HG	DEG F	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN

300.0	100	480	83	450.8	916.6	2,460.9	3,985.8	4,144.9	872.5	798.0
270.0	90	430	80	428.0	893.4	2,306.9	3,884.5	4,028.0	848.2	780.6
240.0	80	383	76	406.4	870.9	2,173.0	3,772.3	3,902.1	821.8	760.2
225.0	75	361	74	396.1	859.8	2,109.4	3,711.7	3,835.1	806.5	747.8
210.0	70	339	72	386.3	846.8	2,047.1	3,649.5	3,766.9	788.0	732.2
180.0	60	296	67	367.7	814.1	1,926.8	3,499.4	3,605.2	751.6	701.1
150.0	50	253	62	350.2	772.8	1,810.5	3,315.8	3,410.8	715.5	669.7
120.0	40	212	54	321.8	707.1	1,643.7	3,018.0	3,100.6	657.9	617.9
90.0	30	170	43	282.8	623.3	1,424.8	2,642.8	2,711.5	577.7	544.3
75.0	25	149	38	260.3	576.0	1,299.8	2,434.3	2,495.5	530.5	500.6
60.0	20	127	31	235.4	524.5	1,162.9	2,209.5	2,262.9	477.8	451.6
30.0	10	82.9	18	178.8	412.8	851.2	1,728.1	1,764.7	377.1	358.8

Heat Rejection Data Top

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHUAST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
300.0	100	480	6,838	1,312	18,223	10,196	2,598	5,239	20,357	48,785	51,968
270.0	90	430	6,227	1,100	16,530	8,999	2,344	4,774	18,249	44,009	46,881
240.0	80	383	5,718	954	15,163	8,062	2,120	4,304	16,263	39,804	42,402
225.0	75	361	5,492	885	14,576	7,680	2,017	4,080	15,306	37,868	40,339
210.0	70	339	5,288	827	14,082	7,393	1,922	3,868	14,366	36,078	38,432
180.0	60	296	4,912	823	13,054	6,800	1,739	3,448	12,536	32,644	34,774
150.0	50	253	4,565	786	11,966	6,184	1,555	3,034	10,749	29,195	31,100
120.0	40	212	4,219	770	10,567	5,402	1,348	2,419	8,983	25,307	26,959
90.0	30	170	3,811	699	8,973	4,534	1,120	1,706	7,210	21,028	22,400
75.0	25	149	3,554	623	8,129	4,085	999	1,352	6,312	18,747	19,970
60.0	20	127	3,271	492	7,247	3,625	871	1,008	5,399	16,350	17,417
30.0	10	82.9	2,624	519	4,878	2,172	597	397	3,514	11,200	11,931

Emissions Data Top

Units Filter [All Units]

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	300.0 480	225.0 361	150.0 253	75.0 149	30.0 82.9
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	2,032	1,047	539	288	217
TOTAL CO		G/HR	214	166	242	203	191
TOTAL HC		G/HR	50	54	81	76	65
PART MATTER		G/HR	30.2	29.7	66.7	43.9	28.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,371.7	1,572.5	1,056.2	887.0	1,244.7
TOTAL CO	(CORR 5% O2)	MG/NM3	216.0	218.7	414.7	579.4	974.9
TOTAL HC	(CORR 5% O2)	MG/NM3	43.7	62.4	119.7	182.7	276.3
PART MATTER	(CORR 5% O2)	MG/NM3	24.8	34.3	101.8	98.2	126.1
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,155	766	514	432	606
TOTAL CO	(CORR 5% O2)	PPM	173	175	332	464	780
TOTAL HC	(CORR 5% O2)	PPM	82	116	223	341	516
TOTAL NOX (AS NO2)		G/HP-HR	4.27	2.92	2.13	1.94	2.61
TOTAL CO		G/HP-HR	0.45	0.46	0.96	1.36	2.30
TOTAL HC		G/HP-HR	0.11	0.15	0.32	0.51	0.79
PART MATTER		G/HP-HR	0.06	0.08	0.26	0.29	0.34
TOTAL NOX (AS NO2)		LB/HR	4.48	2.31	1.19	0.64	0.48
TOTAL CO		LB/HR	0.47	0.37	0.53	0.45	0.42
TOTAL HC		LB/HR	0.11	0.12	0.18	0.17	0.14
PART MATTER		LB/HR	0.07	0.07	0.15	0.10	0.06

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**300.0**	**225.0**	**150.0**	**75.0**	**30.0**
ENGINE POWER		**BHP**	**480**	**361**	**253**	**149**	**82.9**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	1,881	970	499	267	201
TOTAL CO		G/HR	115	89	129	109	102
TOTAL HC		G/HR	26	29	43	40	35
TOTAL CO2		KG/HR	225	175	135	86	51
PART MATTER		G/HR	15.5	15.2	34.2	22.5	14.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,196.0	1,456.1	978.0	821.3	1,152.5
TOTAL CO	(CORR 5% O2)	MG/NM3	115.5	117.0	221.7	309.8	521.3
TOTAL HC	(CORR 5% O2)	MG/NM3	23.1	33.0	63.3	96.7	146.2
PART MATTER	(CORR 5% O2)	MG/NM3	12.7	17.6	52.2	50.4	64.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,070	709	476	400	561
TOTAL CO	(CORR 5% O2)	PPM	92	94	177	248	417
TOTAL HC	(CORR 5% O2)	PPM	43	62	118	180	273
TOTAL NOX (AS NO2)		G/HP-HR	3.95	2.70	1.98	1.79	2.42
TOTAL CO		G/HP-HR	0.24	0.25	0.51	0.73	1.23
TOTAL HC		G/HP-HR	0.06	0.08	0.17	0.27	0.42
PART MATTER		G/HP-HR	0.03	0.04	0.14	0.15	0.18
TOTAL NOX (AS NO2)		LB/HR	4.15	2.14	1.10	0.59	0.44
TOTAL CO		LB/HR	0.25	0.20	0.29	0.24	0.22
TOTAL HC		LB/HR	0.06	0.06	0.09	0.09	0.08
TOTAL CO2		LB/HR	496	387	297	189	112
PART MATTER		LB/HR	0.03	0.03	0.08	0.05	0.03
OXYGEN IN EXH		%	9.2	11.2	12.6	13.6	15.0
DRY SMOKE OPACITY		%	0.3	0.4	1.0	0.8	0.8
BOSCH SMOKE NUMBER			0.07	0.20	0.90	0.76	0.68

Regulatory Information Top

EPA TIER 3 **2005 - 2010**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 89 SUBPART D AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	**Agency**	**Regulation**	**Tier/Stage**	**Max Limits - G/BKW - HR**
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 3	CO: 3.5 NOx + HC: 4.0 PM: 0.20

EPA EMERGENCY STATIONARY **2011 - ----**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.

Locality	**Agency**	**Regulation**	**Tier/Stage**	**Max Limits - G/BKW - HR**
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 4.0 PM: 0.20

Altitude Derate Data Top

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**NORMAL**
ALTITUDE (FT)													
0	480	480	480	480	480	477	474	465	452	433	412	395	478
1,000	480	480	480	480	477	475	470	457	441	422	402	386	476
2,000	480	480	479	477	474	470	463	446	427	410	392	376	473
3,000	480	478	475	470	463	457	449	434	418	403	386	370	464

4,000	475	469	463	456	450	444	436	422	407	391	374	358	453
5,000	462	456	449	442	436	430	422	408	393	377	360	343	442
6,000	449	442	435	428	422	416	408	394	379	362	346	329	430
7,000	434	428	421	414	408	402	394	379	364	348	332	315	418
8,000	420	413	406	400	394	387	380	365	350	334	318	302	406
9,000	405	398	392	385	379	373	365	350	335	320	305	289	394
10,000	390	384	377	371	365	359	352	337	322	307	293	278	382
11,000	376	369	363	357	351	345	339	334	320	305	291	277	370
12,000	361	355	348	342	337	331	326	320	315	303	288	270	357
13,000	347	340	334	329	323	318	312	307	302	290	274	257	345
14,000	332	326	321	315	310	304	299	294	289	276	261	246	333
15,000	319	313	307	302	297	291	286	282	276	263	249	235	322

Cross Reference Top

Engine Arrangement

Arrangement Number	Effective Serial Number	Engineering Model	Engineering Model Version
2531644	S9L00001	GS279	-
3950369	S9P00001	GS279	-
4529865	S9P00001	GS857	LS

Test Specification Data

Test Spec	Setting	Effective Serial Number	Engine Arrangement
0K6616		S9L00001	2531644
4150068	PP5547	S9P00001	3950369
4150068	PP5547	S9P00001	4529865

Performance Parameter Reference Top

Parameters Reference: DM9600 - 08

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION:
Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS:
Power +/- 3%
Torque +/- 3%
Exhaust stack temperature +/- 8%

Inlet airflow +/- 5%
Intake manifold pressure-gage +/- 10%
Exhaust flow +/- 6%
Specific fuel consumption +/- 3%
Fuel rate +/- 5%
Specific DEF consumption +/- 3%
DEF rate +/- 5%
Heat rejection +/- 5%
Heat rejection exhaust only +/- 10%
Heat rejection CEM only +/- 10%

Heat Rejection values based on using treated water.

Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.

On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.

These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS:
Heat rejection +/- 10%
Heat rejection to Atmosphere +/- 50%
Heat rejection to Lube Oil +/- 20%
Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS:

Torque +/- 0.5%
Speed +/- 0.2%
Fuel flow +/- 1.0%
Temperature +/- 2.0 C degrees
Intake manifold pressure +/- 0.1 kPa

OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR
FOR 3500 ENGINES AND SMALLER
SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.

FOR 3600 ENGINES
Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE

Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER
The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL
DIESEL
Reference fuel is #2 distillate diesel with a 35API gravity;
A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 29 (84.2), where the density is 838.9 G/Liter (7.001 Lbs/Gal).

GAS
Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD
Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY
Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.

Standard temperature values versus altitude could be seen on TM2001.

When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.

Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.

Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar

technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE
TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.

Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSIONS DEFINITIONS:
Emissions : DM1176

HEAT REJECTION DEFINITIONS:
Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS:
3500: EM1500

RATING DEFINITIONS:
Agriculture : TM6008

Fire Pump : TM6009

Generator Set : TM6035

Generator (Gas) : TM6041

Industrial Diesel : TM6010

Industrial (Gas) : TM6040

Irrigation : TM5749

Locomotive : TM6037

Marine Auxiliary : TM6036

Marine Prop (Except 3600) : TM5747

Marine Prop (3600 only) : TM5748

MSHA : TM6042

Oil Field (Petroleum) : TM6011

Off-Highway Truck : TM6039

On-Highway Truck : TM6038

SOUND DEFINITIONS:
Sound Power : DM8702

Sound Pressure : TM7080

Date Released : 7/7/15

Systems Data

Reference Number: DM8168

CATERPILLAR®

July 29, 2016
For Help Desk Phone Numbers Click Here

AIR INTAKE SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH CLEAN ELEMENT	15	IN-H20
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH DIRTY ELEMENT	30	IN-H20
MAXIMUM PRESSURE DROP FROM COMPRESSOR OUTLET TO MANIFOLD INLET (OR MIXER INLET FOR EGR)	4.4	IN-HG
MAXIMUM TURBO INLET AIR TEMPERATURE	122	DEG F
MAXIMUM AIR FILTER INLET AIR TEMPERATURE	122	DEG F
CHARGE AIR FLOW AT RATED SPEED	62.8	LB/MIN
TURBO COMPRESSOR OUTLET PRESSURE AT RATED SPEED (ABSOLUTE)	108.8	IN-HG
COOLING SYSTEM		
ENGINE ONLY COOLANT CAPACITY	3.7	GAL
MAXIMUM ALLOWABLE JACKET WATER OUTLET TEMPERATURE	223	DEG F
REGULATOR LOCATION FOR JW (HT) CIRCUIT	OUTLET	
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN
MINIMUM ALLOWABLE COOLANT LOSS (PERCENTAGE OF TOTAL)	90	PERCENT
COOLANT LOSS-MAXIMUM PERCENTAGE OF PUMP PRESSURE RISE LOSS	10	PERCENT
AIR VENT CAPABILITY AT 35% PUMP PRESSURE RISE LOSS	3.80	PT/MIN
ENGINE SPEC SYSTEM		
CYLINDER ARRANGEMENT	INLINE	
NUMBER OF CYLINDERS	6	
CYLINDER BORE DIAMETER	4.4	IN
PISTON STROKE	5.9	IN
TOTAL CYLINDER DISPLACEMENT	538	CU IN
STANDARD CRANKSHAFT ROTATION FROM FLYWHEEL END	CCW	
STANDARD CYLINDER FIRING ORDER	1-5-3-6-2-4	
NUMBER 1 CYLINDER LOCATION	FRONT	
STROKES/COMBUSTION CYCLE	4	
EXHAUST SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE SYSTEM BACK PRESSURE	40	IN-H20
MANIFOLD TYPE	DRY	
FUEL SYSTEM		
MAXIMUM FUEL FLOW FROM TRANSFER PUMP TO ENGINE	46.5	G/HR
MAXIMUM ALLOWABLE FUEL SUPPLY LINE RESTRICTION	8.0	IN-HG

MAXIMUM ALLOWABLE FUEL TEMPERATURE AT TRANSFER PUMP INLET	151	DEG F
MAXIMUM FUEL FLOW TO RETURN LINE FROM ENGINE	29.9	G/HR
MAXIMUM ALLOWABLE FUEL RETURN LINE RESTRICTION	14.8	IN-HG
NORMAL FUEL PRESSURE IN A CLEAN SYSTEM	72.5	PSI
FUEL SYSTEM TYPE	HEUI	
LUBE SYSTEM		
LUBE SYSTEM OIL COOLER TYPE	PLATE	
CRANKCASE VENTILATION TYPE	TO ATM	
MOUNTING SYSTEM		
CENTER OF GRAVITY LOCATION - X DIMENSION - FROM REAR FACE OF BLOCK - (REFERENCE TM7077)	16.8	IN
CENTER OF GRAVITY LOCATION - Y DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	8.2	IN
CENTER OF GRAVITY LOCATION - Z DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	0.0	IN
STARTING SYSTEM		
LOWEST AMBIENT START TEMPERATURE WITHOUT AIDS	32	DEG F

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2016 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Caterpillar Inc.**
(U.S. Manufacturer or Importer)

Certificate Number: **GCPXL08.8NZS-001**

Effective Date: 07/10/2015

Expiration Date: 12/31/2016

Byron J. Bunker, Division Director
Compliance Division

Issue Date: 07/10/2015

Revision Date: N/A

Model Year: 2016
Manufacturer Type: Original Engine Manufacturer
Engine Family: GCPXL08.8NZS

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 225<=kW<450
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Electronic Control, Engine Design Modification

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.